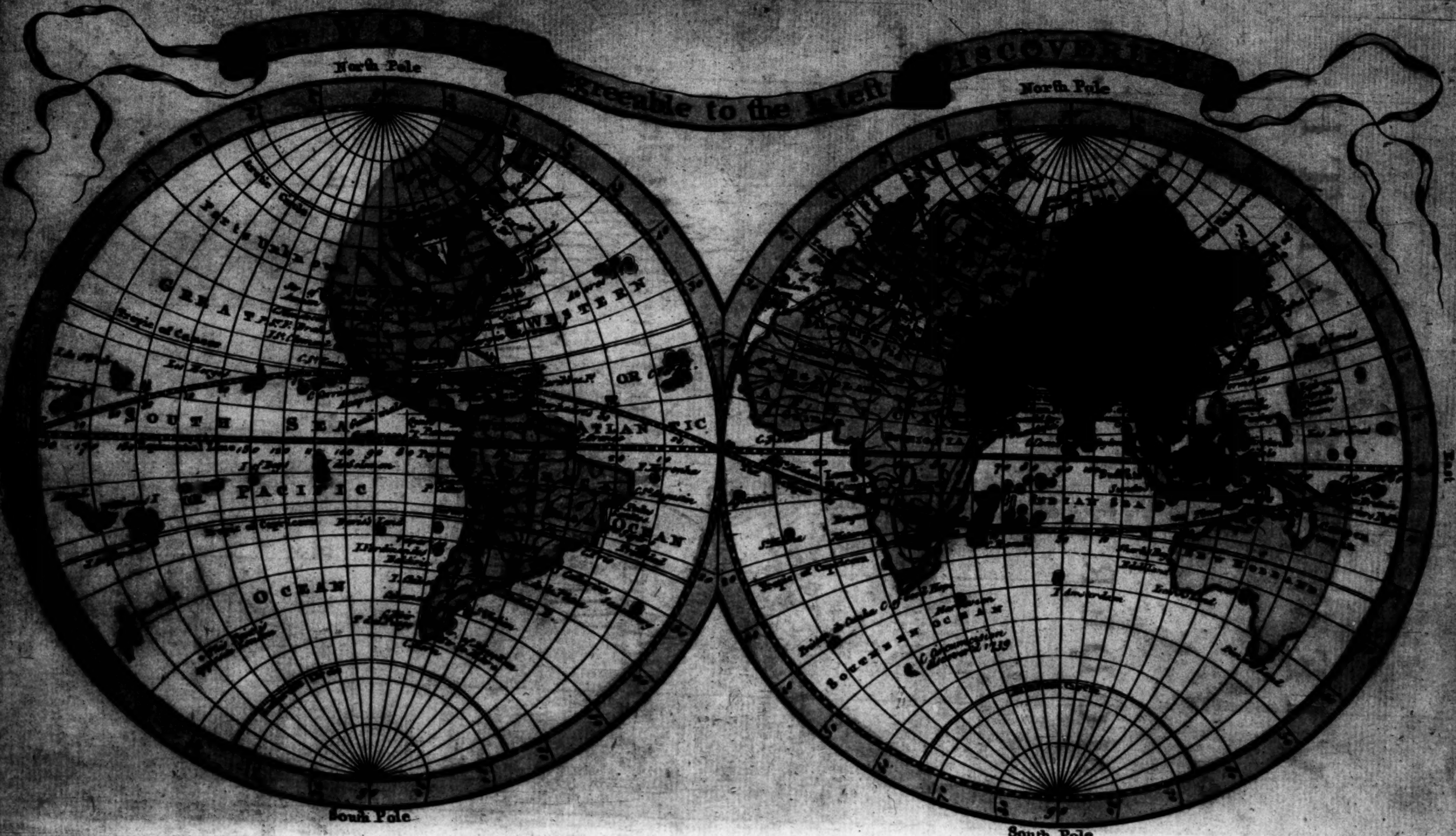

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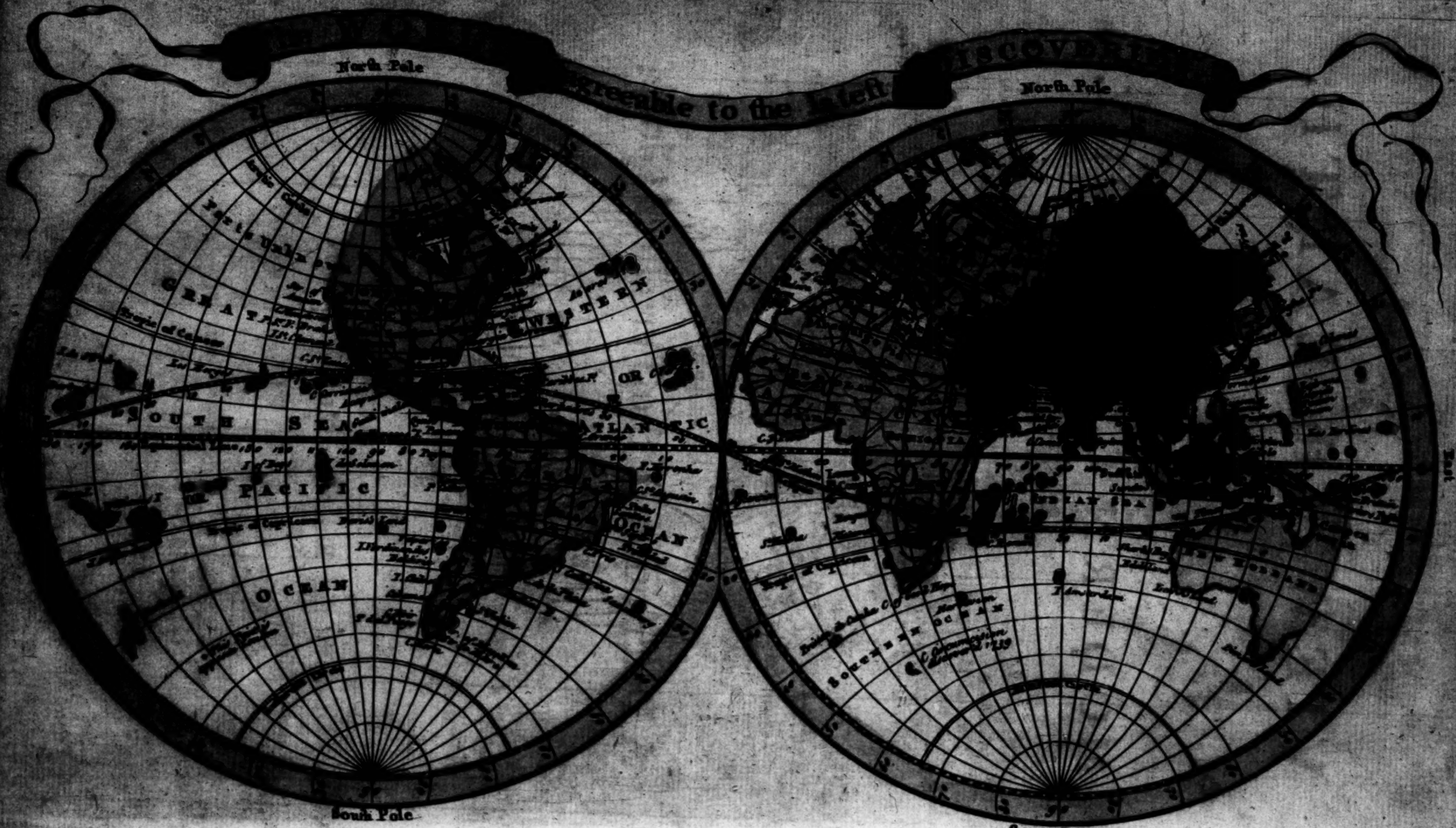

J. Gibson Sculp:

C.ANTHONY

A
VIEW of the EARTH:
Being a ſhort, but comprehenſive
SYSTEM
OF
MODERN GEOGRAPHY.

EXHIBITING,

I. A Deſcription of the *Figure*, *Size*, *Motion*, &c. of the *Earth*; with the Uſes and Height of the *Atmoſphere*, or *Air* ſurrounding it.
II. Such Geographical DEFINITIONS, *Schemes*, and *Deſcriptions*, as form a neceſſary *Introduction* to this Branch of Learning.
III. The *Situation* and *Extent* of the ſeveral *Kingdoms*, and *Nations* in each Quarter; their *chief City*; with the *Diſtance*, *Direction*, and *Difference* of *Time* from *London*.
IV. An Account of the ſeveral *Iſlands*, Trade, Commodities, *Religions*, principal *Mountains*, and *Rivers* in the World; alſo ſome Obſervations on the *leſs known Parts*, the *Trade Winds*, and *Monſoons*.
V. The Explanation and Uſe of a new *Set of Maps*, annex'd to the ſeveral Quarters, drawn according to the moſt approved *modern Projections*, and regulated by *Cœleſtial Obſervations*.
VI. A new and curious *Geographical Clock*, which points out the *Difference of Time*, with the *Hour*, in the *different Nations* upon Earth, at one View,

To which is added,

A Deſcription of the Terreſtrial Globe;

WITH

Its Application to ſuch *Problems* as every Day occur. Concluding with ſome curious *Phænomena* exhibited upon it in a *darkened Room*; and a few *ſelect Paradoxes*, intended to excite the Attention of the Learner.

The Whole laid down in a Manner ſo *eaſy* and *natural*, as to be underſtood in a *few Days*.

Addreſſed to the *young Gentlemen* and *Ladies* of *Great Britain* and *Ireland*.

Dr

By the Reverend Dr. TURNER,
1795.
Late of *Magdalen-Hall*, *Oxford*; now Rector of *Comberton*, Vicar of *Elmley*, &c. and
Teacher of the *Mathematics* and *Philoſophy*, at *Worceſter*.

There is not a SON *or a* DAUGHTER *of* Adam, *but has ſome Concern in both* GEOGRAPHY *and* ASTRONOMY.
Dr. WATTS.

LONDON:
Printed for S. CROWDER, and Co. in Pater-noſter-Row; and S. GAMIDGE,
Bookſeller, in Worceſter. MDCCLXII.
1762

1602/438.

TO THE

YOUNG GENTLEMEN,

AND

YOUNG LADIES,

(However titled, or otherwiſe diſtinguiſh'd)

Thro' all Parts of the **BRITISH EMPIRE.**

THIS compendious Syſtem of GEOGRAPHY,—a *Science* no longer eſteem'd as a *fine Accompliſhment only*, but a *neceſſary Part of uſeful Education* (as it impreſſes ſuch Knowledge of the World, of which you are Inhabitants, as muſt render You not only more ſerviceable to your COUNTRY, in public Life, but more happy in your ſmaller Circles of Connection, and private Retirements) is, with the profoundeſt Reſpect,

Dedicated and devoted

To your Services,

By

The AUTHOR.

A SHORT SYSTEM OF MODERN GEOGRAPHY.

GEOGRAPHY is a Deſcription of the Earth, as it ſtands divided into *Land* and *Water*, for both theſe together conſtitute our Globe: ——And, is a *Science* not only curious and entertaining, but of the greateſt Uſe. It opens and enlarges the *Ideas*; gives you true Notions of the various Situations of Kingdoms, Nations, and People; and is of ſuch Conſequence in Hiſtory, that nothing can be underſtood (with Juſtneſs and Propriety) without it. Hence we find the great Mr. *Locke* recommending it in the warmeſt Manner. He is of Opinion, that *Youth* ought to *begin* with this Science, as an Introduction to their future Studies.

Many Volumes are extant already on this Kind of Learning, but their Size rather deters young Minds, than invites them to a peruſal: The following Compendium, I therefore flatter myſelf, will not be unacceptable, as it exhibits (as it were in one Short View) every Thing neceſſary to enable Youth to proceed to the Larger Syſtems of *Geography* or *Hiſtory*, with Eaſe and Pleaſure.

THE EARTH, then, on which we live, is one of the *Planets*; and however it may appear, from the little we can take in at one View, is a large round Ball, about 8000 Miles in Diameter, and 25000 in Circumference. It turns once round upon its Axis from Weſt to Eaſt, (which makes the *Sun* and all the *Heavenly Bodies* appear to move the contrary way, from Eaſt to Weſt) in 24 Hours; which is the Cauſe of *Day* and *Night*. At the ſame Time, it advances in a Circular Orbit round the Sun (which remains fixed in the Center at the Diſtance of 81 Millions of Miles) in the Space of 365 Days, 6 Hours *. This produces the various *Seaſons* of the Year,—WINTER, SUMMER, AUTUMN, and SPRING.

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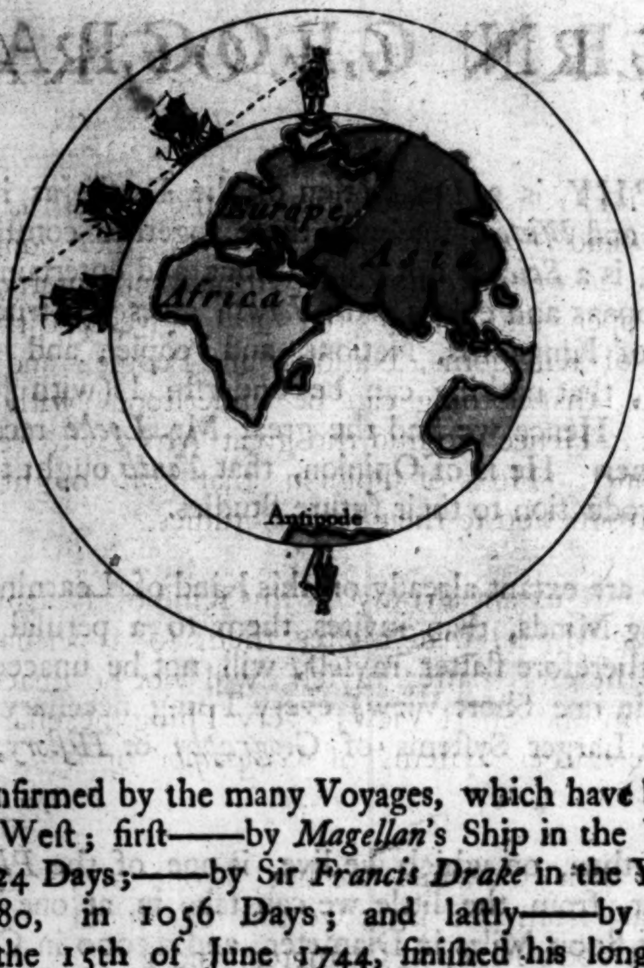
* Note; Theſe 6 Hours in 4 Years make one Day, which is added to February; then that Month hath 29 Days, and the Year is called Leap-Year; becauſe all the ſucceeding Days advance or Leap forward one Day more than they would do, if no ſuch Day was added.

That the Land and Water, taken together, make one round Body, is evident from the many Obſervations of Perſons ſtanding upon the Shore and Viewing a Ship departing from the Port. They firſt loſe Sight of the Bottom of the Veſſel, whilſt they can ſtill See the Rigging and Flags at the Top: but as the Ship recedes farther, they loſe Sight of thoſe alſo; as if the whole was ſunk into the Deep. Likewiſe in a Ship making to Land; the Mariners *firſt* deſcry the Tops of *Steeples*, *Trees*, &c. pointing above the Water; *next*, they ſee the *Buildings* themſelves; and *laſt* of all, the *Shore*; which can only be the Effect of the Earth's *Rotundity*, or *Roundneſs*, as here delineated.



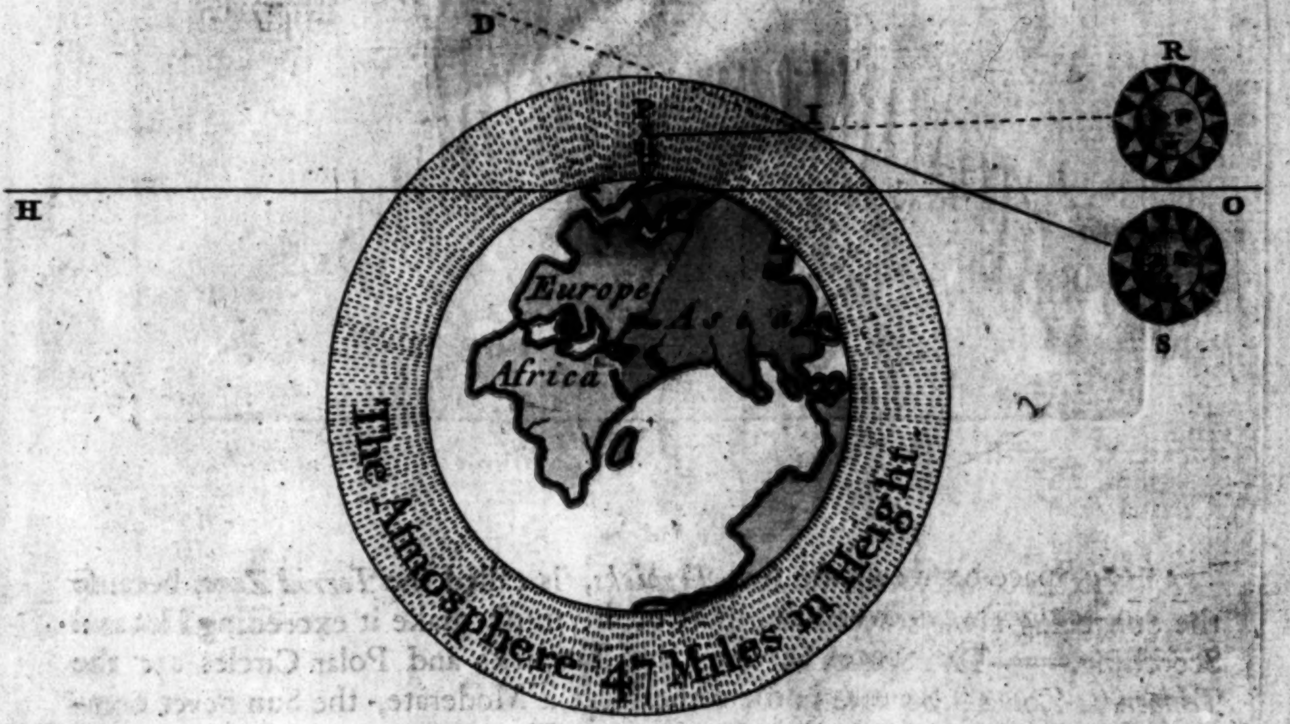
This is alſo confirmed by the many Voyages, which have been made round it, from Eaſt to Weſt; firſt——by *Magellan*'s Ship in the Years 1519, 1520 and 1521, in 1124 Days;——by Sir *Francis Drake* in the Years 1577, 1578, 1579 and 1580, in 1056 Days; and laſtly——by the late Lord *Anſon*, who on the 15th of June 1744, finiſhed his long Voyage of near 4 Years.

The little Unevenneſſes of the Earth's Surface, ariſing from Hills and Vales, is no material Objection to its being Conſidered as round; ſince the higheſt Mountains bear not ſo great a Proportion to the Bulk of the Earth itſelf, as the little Riſings in the Coat of an Orange, bear to the Bigneſs of that Fruit.

Thoſe People, which inhabit that Part of the Globe exactly Under us, are called ANTIPODES: their Feet are over-againſt Ours; when 'tis Noon with us, 'tis Midnight with them; and *our* Summer is *their* Winter.

The Earth reſts upon Nothing, but is poiſed in the Heavens, and Surrounded with a Number of ſmall Atoms, called the *Atmoſphere*, or Air, which gradually grows thiner and Lighter, the higher we Aſcend from its Surface. Its whole Height is ſuppoſed to be about 46 or 47 Miles; but on the Higher Mountains, as the *Alps* in *Italy*, and the *Andees* in *America*, it is ſo very rare, or Thin, that we Breath with great Difficulty; and very probably, at the Diſtance of 6 or 8 Miles from the Earth, no Animal or Bird could live at all.

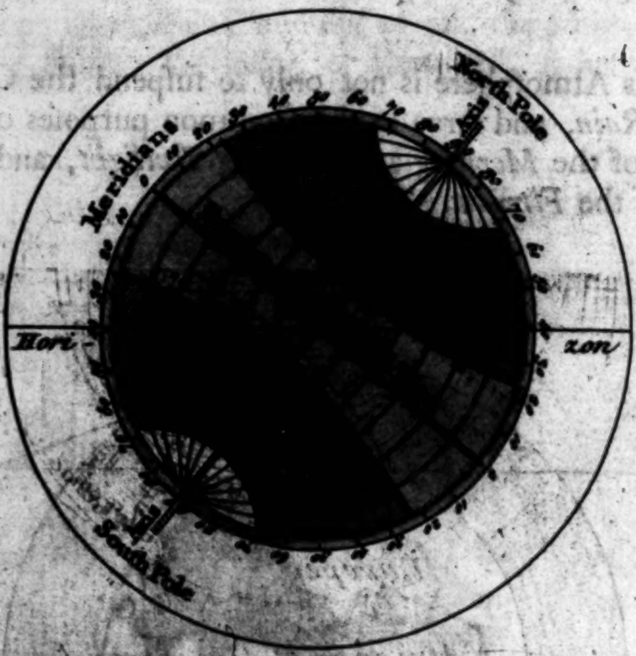
The Uſe of this Atmoſphere is not only to ſuſpend the Clouds, furniſh us with *Winds* and *Rain*, and ſerve to the Common purpoſes of *Breathing*; but is alſo the Cauſe of the *Morning* and *Evening Twilight*, and of all the *Glory* and *Brightneſs* of the *Firmament*.



This Figure repreſents the Earth ſurrounded with its Atmoſphere, H O is the *Horizon* of a Perſon ſtanding at P;—alſo, S repreſents the Sun as yet really under the Horizon, from which a Ray S I aſcends, and falling upon the upper part of the Air at I, is, by the Reſiſtance it meets with there, bent out of its direct Courſe towards D, into the Oblique one I P; and ſo falling upon the Eye of the Spectator, he will then ſee the Sun in the Direction of this refracted Ray at R, a whole Breadth above its true Place.

By this means we are favoured with the Sight of the Sun about 3 Minutes and ¼ every Morning before it riſes above the *Horizon*, and alſo as much every Evening after it ſets below it; which, in one Year, amounts to more than 40 Hours; and ſo much *Sunſhine* are all the Inhabitants on every Part of the Globe bleſſed with, more than they could be, without ſome ſuch Divine Contrivance.

GEOGRAPHERS, for the better underſtanding this Science, have imagined the Globe to be Circumſcribed, and divided with ſeveral *Lines* and *Circles*, whoſe Names, Situation, *&c.* are as here Delineated.



All the Space between the two *Tropicks*, is called the *Torrid Zone*, becauſe the Sun being always over ſome part of it, muſt make it exceeding Hot and Scorching.——The Spaces between the Tropicks and Polar Circles are the *Temperate* Zones; becauſe in theſe the Heat is Moderate, the Sun never coming over the Heads of the Inhabitants.——The Spaces included within the Polar Circles are the two *Frigid* or *Frozen Zones*; ſo called, on Account of the extream Cold and Ice always found there *.

LATITUDE is the Diſtance of any Town or Place from the Equator, either Northward, or Southward, accounted in Degrees and Minutes, each Degree being 60 Computed, or 70 Meaſured Miles.

LONGITUDE is the Diſtance of any Place from a fixed Meridian, (as ſuppoſe that of London) either Eaſtward, or Weſtward, in Degrees and Minutes. *Longitude* has reſpect to Time, every Degree of which is equal to 4 Minutes.—Thus if a Place lies 1 Degree to the Eaſt of us, 'tis always 4 Minutes before us; but if it lies 1 Degree to the Weſt, 'tis 4 Minutes after Us.

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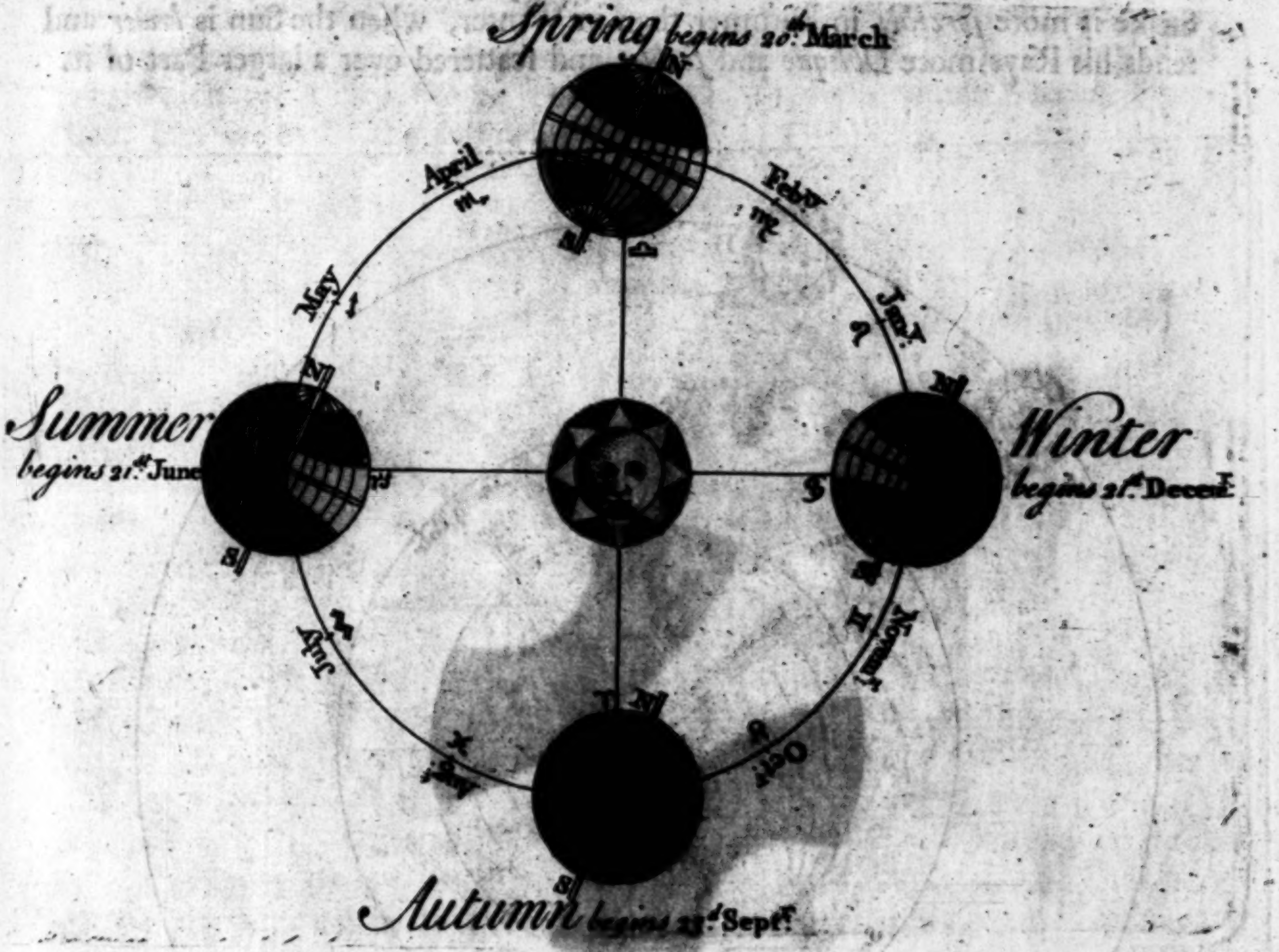
* The Kingdoms, Countries, and Seas, ſituate in theſe ſeveral Zones, are ſeen by Caſting the Eye on the Map of the World, at the beginning of the Book.

The MANNER in which the Earth revolves, to cauſe theſe various Changes in the Length of the Day, and Viciſſitudes of the Year, is exhibited in the following Scheme.

The EARTH, in its annual Motion, has its Axis always in the ſame Direction, or parallel to itſelf, and moves from Weſt to Eaſt in 365 Days 6 Hours, and upon this *Poſition* depends the *Variety* of all the *Seaſons*.

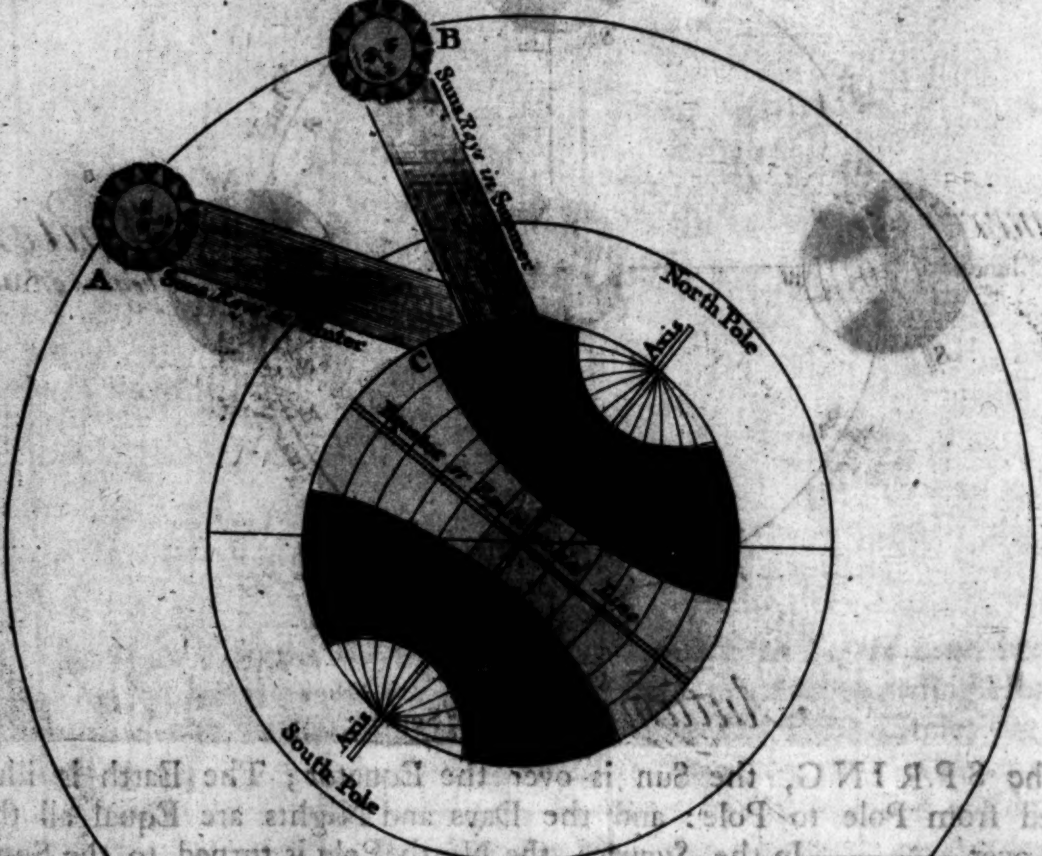


In the SPRING, the Sun is over the Equator; The Earth is illuminated from Pole to Pole: and the Days and Nights are Equal all the Globe over.————In the *Summer*, the North Pole is turned to the Sun; which Deſcribes the Tropic of Cancer; then our Days are at the Longeſt, and the South Pole is involved in Darkneſs.————In *Autumn*, the Earth is arrived to that part of her Orbit oppoſite the Spring, and the Sun is got over the Equator again. Now both Poles are illuminated, and 'tis Equal Day and Night as in the Spring.————In the *Winter*, the South Pole becomes turned to the Sun, which is then over the Tropic of Capricorn: the Days are then at the ſhorteſt with us, and the North Pole is wrapt in Obſcurity and Shade.

The Earth does not revolve in an exact *Circle*, but in an Orb a little *Elliptical*; it muſt, therefore, be ſometimes *nearer* the Sun, ſometimes further *from* him:—Muſt ſometimes move *ſlower*, and ſometimes *faſter*. This is the *Reaſon*, why our *Summer* half Year, when the Earth is furtheſt from the Sun, is *longer* than the *Winter* half, by about 8 *Days*, when it is neareſt.

The nearer any place is to the Pole, the Longer are its Days in the Summer, and the Shorter in the Winter; at the very Pole, the Longeſt Day is ſix Months, and in Winter the Longeſt Night is juſt the Same.

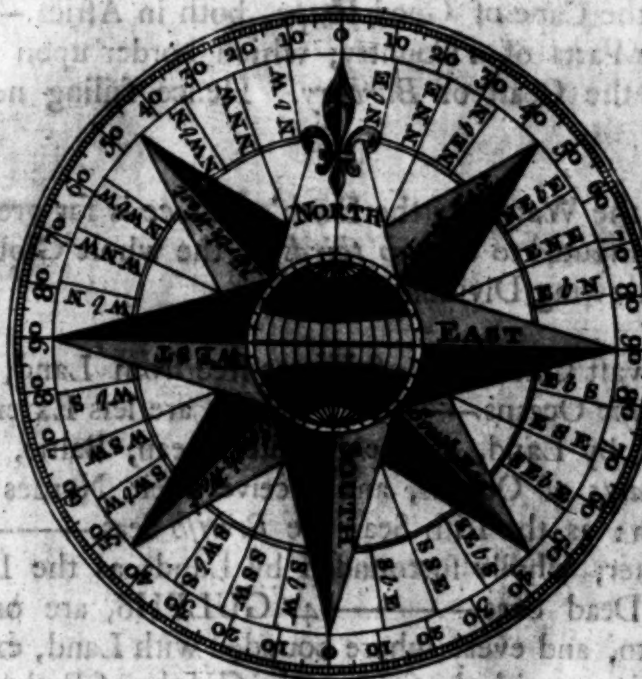
The Reaſon of the Greater Heat in Summer than in Winter, is, becauſe the Sun is not only *longer*, but *higher* above the Horizon; conſequently, his Rays come to the Earth in a Direction more *perpendicular* to its Surface, and Strike it more *forcibly* in Summer than in Winter, when the Sun is *lower* and ſends his Rays more *Oblique* and *feeble*, and ſcattered over a larger Part of it.



Let A repreſent the Height of the Sun at Noon in *Winter*, and B the Height in *Summer*: then in the *former* Caſe, the parallel Rays, which fall upon the Ground and ſcatter over it from C to D, will, in the *latter* Caſe, occupy only the Narrow Space *e f*; Conſequently, as it is much *leſs*, it muſt be more *Hot* than before. This, with the *Longer Continuance* of the Sun with us in the Summer, than in Winter, is quite Sufficient to produce the great Diſproportion of Heat we experience in thoſe two different Seaſons of the Year.

That *large Circle*, which ſeems to ſurround us, when we ſtand upon ſome little Hill, or Eminence, in the open Fields, and bounds our View, is called the *Horizon*. Every part of this Circle is exactly 90 Degrees from the Center of it over our Heads, which point is called the *Zenith*, and the point of the Heavens, oppoſite or under our Feet, is called the *Nadir*.

This great Circle is ſuppoſed to be divided into 4 equal Parts, reſpecting the four principal Quarters of the World.—*Eaſt*, *Weſt*, *North*, and *South*, and each of thoſe is alſo ſubdivided into 8 other equal Parts, making in all 32, which are called the 32 Points of the *Compaſs*; whoſe Names, Situation, *&c.* are as in the following Figure.



If this graduated Circle be drawn upon Paper or Paſteboard, and a Wire touched on a Loadſtone be paſted on the under Side, and then hung by the means of a little Braſs Cap fixed in the Center, on a Pin erected in the middle of a Braſs or Wood Box covered with a Glaſs, it will always turn its Points to the correſpondent Points of the World; conſequently it becomes of infinite Uſe in conducting the *Mariner* through the extenſive Ocean, and the *Traveller* over the Pathleſs Deſarts, which are met with in many Parts of the Earth.

Little *Machines* of this ſort, neatly fitted up for the Pocket in ſmall Braſs Boxes, are to be had at any *Toy-Shop* in Town or Country, at *One Shilling* each.

The GLOBE, as I obſerved before, is compoſed of *Land* and *Water*.

The LAND is about *one third* of the whole Surface, and is generally divided into the following Parts, viz.

1. CONTINENTS, which are Large Tracts of Land, containing many Kingdoms, and Countries; as Europe, Aſia, Africa, &c.———2. ISLANDS, are parts of Land ſurrounded by the Sea, as Britain, Ireland, Madagaſcar, and Japon.———3. PENINSULAS, are ſuch Parts of Land, as are encompaſſed by Water, except one narrow part, by which it is joined to the main Land, as Jutland at the Top of Germany, and Morea in Greece.——4. ISTHMUS's are narrow Necks of Land joining the Peninſulas to the Main Land, as the Iſthmus of Darien, or Panama, in America: the *Iſthmus* of *Corinth* joining the *Morea* to *Greece*.———5. PROMONTARIES, or CAPES, are thoſe High parts of Land, which Shoot far into the Sea, as Cape Verde, and the Cape of Good Hope, both in Africa.——6. COASTS or *Shores* are thoſe Parts of a Country, which border upon the Sea, as the Coaſt of *France*; the Coaſt of *Barbary*. Hence ſailing near the Shore is called *Coaſting*.

The Extent of the Water on the Earth's Surface is far greater than that of the Land; it is computed to be *two thirds* of the whole Globe, and is diſtinguiſhed by the following Diviſions.

1. OCEANS, vaſt Collections of Water free from Land, as the *Atlantic*, *Ethiopic*, and *Pacific* Oceans.———2. SEAS, are leſs Extenſions of Water almoſt ſurrounded by Land, as the Mediterranean, Baltic, and Euxine; all the reſt are but *parts* of Oceans, and receive their Names from the Land that lies next them: as the Iriſh Sea, the *Britiſh* Seas.———3. LAKES, are Tracts of Water, wholly ſurrounded by Land, as the Lake of Geneva, the Caſpian and Dead Seas.———4. GULPHS, are only *parts* of the Sea running up into, and every where bounded with Land, except one part by which it communicates with the Sea; as the Gulphs of Bothni, Venice, Perſia, and Florida.———5. STREIGHTS are narrow Paſſages of Water joining one Sea to another, as the Streights of Gibraltar, leading into the *Mediterranean*, the Streights of Babalmandel, leading into the *Red Sea* *.

We come now to deſcribe the GRAND DIVISIONS of the Earth, viz. *Europe*, *Aſia*, and *Africa*, called the *Old World*, being all that was known to the Ancients: And *North* and *South America*, called the *New World*, on Account of their being diſcovered but about 270 Years ago.

[*] If a *Gulph* is very large, it is called an Inland Sea, as the *Mediterranean Sea*. If it is not ſo large, nor runs ſo *far* into the Land, 'tis called a Bay; as the *Bay of Biſcay* in *France*. If it is but ſmall, and runs but a little Way into the Land, 'tis called a *Creek*, or *Haven*; a Station or Road for Ships; as *Milford Haven* in *Wales*.

[illegible]

ing the French.—The Spaniards and Portuguese, [illegible].—The Turks long Beards, Turbans, and a long Veil [illegible].—The Russian Ladies Dress much resembles that of the Men.

EUROPE
FROZEN OCEAN
Whale Fishery
Meridian of London
CASPIAN SEA
BLACK SEA
ANATOLIA
HOLY LAND
MEDITERRANEAN
BARBARY
BAY OF BISCAY
WESTERN or ATLANTIC OCEAN
Hours before London
Minutes after London

EUROPE is bounded on the *North* by the Frozen Ocean—on the *Eaſt* by Aſia, and the Rivers Don, Walga, and Oby—on the *South* by the Mediterranean—and on the *Weſt* by the great Atlantic Ocean, being about 3000 Miles in Length and 2500 in Breadth. It is the leaſt Quarter, but of the moſt renown, for the Temper of the Air; the Fruitfulneſs of the Soil; Study of the Arts and Sciences; but above all, for the Eſtabliſhment of the Chriſtian Religion. It contains the following Kingdoms and States.

	Kingdoms.	Length.	Breadth.	Chief City.	Diſt. & Bearing from London.	Diff. of Time from London.	Religions.
British Empire.						H. M.	
	England	360	300	London	• • •	• • •	Lutherans
	Scotland	300	150	Edinburgh	270 N.	0 12 aft.	Calviniſts
	Ireland	300	150	Dublin	250 N. W.	0 26 aft.	Lutherans
	Norway	1000	300	Bergen	540 N.	0 24 bef.	Lutherans
	Denmark	240	180	Copenhagen	480 N. E.	0 50 bef.	Lutherans
	Sweden	800	500	Stockholm	750 N. E.	1 10 bef.	Lutherans
	Ruſſia	1500	1100	Peterſburg	1140 N. E.	2 4 bef.	Greek Church
	Poland	700	680	Warſaw	760 S. E.	1 24 bef.	Papiſts
	Pruſſia	400	160	Berlin	540 E.	0 59 bef.	Lutherans
	Germany	600	500	Vienna	650 E.	1 5 bef.	Papiſts
Nether-lands.	Holland	160	100	Amſterdam	150 E.	0 18 bef.	All Religions
	Flanders	180	150	Bruſſels	180 S. E.	0 16 bef.	Papiſts
	France	600	500	Paris	160 S. E.	0 9 bef.	Papiſts
	Spain	700	500	Madrid	690 S.	0 17 aft.	Papiſts
	Portugal	300	100	Liſbon	840 S. W.	0 38 aft.	Papiſts
	Switzerland	260	100	Bern	420 S. E.	0 28 bef.	Calvin.&Papiſts
Italy.	Lombardy	Several ſmall States; Piedmont, Montferrat, Milan, Parma, Modena, Mantua, Venice, Genoa, Tuſcany, &c.					
	Popedom	240	150	Rome	780 S. E.	0 52 bef.	Papiſts
	Naples	270	180	Naples	870 S. E.	1 0 bef.	Papiſts
	Hungary	300	200	Buda	780 S. E.	1 17 bef.	Papiſts
Turkey in Europe.	Danubian Provinces	600	420	Conſtantinople	1320 S. E.	1 58 bef.	Mahometans, with ſome Jews and Chriſtians.
	Lit. Tartary	380	240	Caffa	1500 S. E.	2 24 bef.	
	Greece	400	240	Athens	1320 S. E.	1 37 bef.	

The *Situation* of the ſeveral *Kingdoms* and *States*, with the *Principal* Towns in each——you will find inſcribed in the adjoining Map, with their *Diſtances* and *Poſitions* exactly laid down with reſpect to each other.

The *Europeans* in general are well made, and tolerably fair, except in *Spain*, where they begin to be *ſwarthy*:—In Dreſs, they are fond of imitating the *French*.—The *Spaniards* and *Hungarians* wear *Whiſkers*.—The *Turks* long Beards, Turbants, and a long Veſt ty'd with a Saſh.—The *Turkiſh Ladies* Dreſs much reſembles that of the Men.

The COMMODITIES of theſe Countries are, in the *Northern Parts*, *Pitch*, *Tar*, *Roſin*, *Hemp*, *Deals*, *Maſts*, *Oaks*, *Furs*, *Iron*, *Coal*, *Tin*, and *Fiſh*.——In the *Middle*, *Corn*, *Cyder*, *Perry*, *Hops*, *Cattle*, *Salt*, *Lawn*, *Lace*, *Cambrick*, *Woollen Cloth*, *Leather*, *Gloves*, *Clocks*, *Watches*, *Hardware*, *Toys*, *Paper*, *Hats*, and *Glaſs*.——In the *South*, *Wine*, *Allom*, *Amber*, *Rice*, *Raiſins*, *Oranges*, *Lemons*, *Marble*, *Cottens*, *Velvets*, and *Mohair*.

The ISLANDS of this Quarter are, in the *North*,—*Greenland* and *Iceland*, in which is the burning Mountain *Hecla*, ſuppoſed, by its frequent Eruptions, to be the Cauſe of the *Northern Lights*. It belongs, with the little Iſles of Farro, Zealand, and Funen, *&c.* in the Baltic, to the Crown of Denmark.——Near *Great Britian*, are the *Shetland* Iſles, the *Weſtern* Iſles, *Orkneys*, *Man*, *Angleſea*, *Scilly*, *Wight*, *Jerſy*, *Guernſey*, ſubject to the *Engliſh*.——On the *Weſt*, are the *Azores*, Nine in Number, the Chief St. *Michael*; St. *Maria*; *Torcera*, and *Graciofia*; the Trade is *Wine* and *Sugar*; and all belong to the King of Portugal.—In the *Mediterranean* Sea are *Yvica*, *Majorca*, belonging to *Spain*.——*Minorca*, and *Corſica*, belonging to the *French*.——*Sardinia* a Kingdom of itſelf.——*Sicily*,—(here is the burning Mountain *Etna*,) belongs to the King of *Naples*.—*Malta* belongs to its own *Grand Maſter*.—*Cyprus*, *Candia*, *Rhodes*, *Patmos*, and the Cluſter of ſmall ones in the *Archipelago*, belong to the *Turks*.

The principal MOUNTAINS in this part of the World are the *Dolphrino* Hills, between Sweden and Norway;—the *Hyperborœan* Mountains in the north Part of Muſcovy;—the Caparthen Mouutains in the South Part of Poland;—the Pyrenean Hills between Spain and France;—the *Alps* between Italy and Germany; —the *Appenine* Hills dividing Italy into Eaſt and Weſt; —the *Peak* in England;—*Plinlimmon* in Wales:—and *Grampiar* and *Cheviot* Hills in Scotland.

In this Quarter, the moſt noted RIVERS are, the *Thames* and *Severn* in England;—*Forth* and *Tay* in Scotland;—*Shannon* in Ireland;—*Elbe* in Saxony; —*Rhine* in the Netherlands;—*Weiſel* in Poland;—*Tagus* or *Tayo* in Portugal and Spain;—*Tiber* and *Po* in Italy;—*Walga* and *Don* in Ruſſia;—*Seine* and *Rhone* in *France*; and the *Danube*, which runs all through Germany, Turky in Europe, and empties itſelf into the Black Sea.

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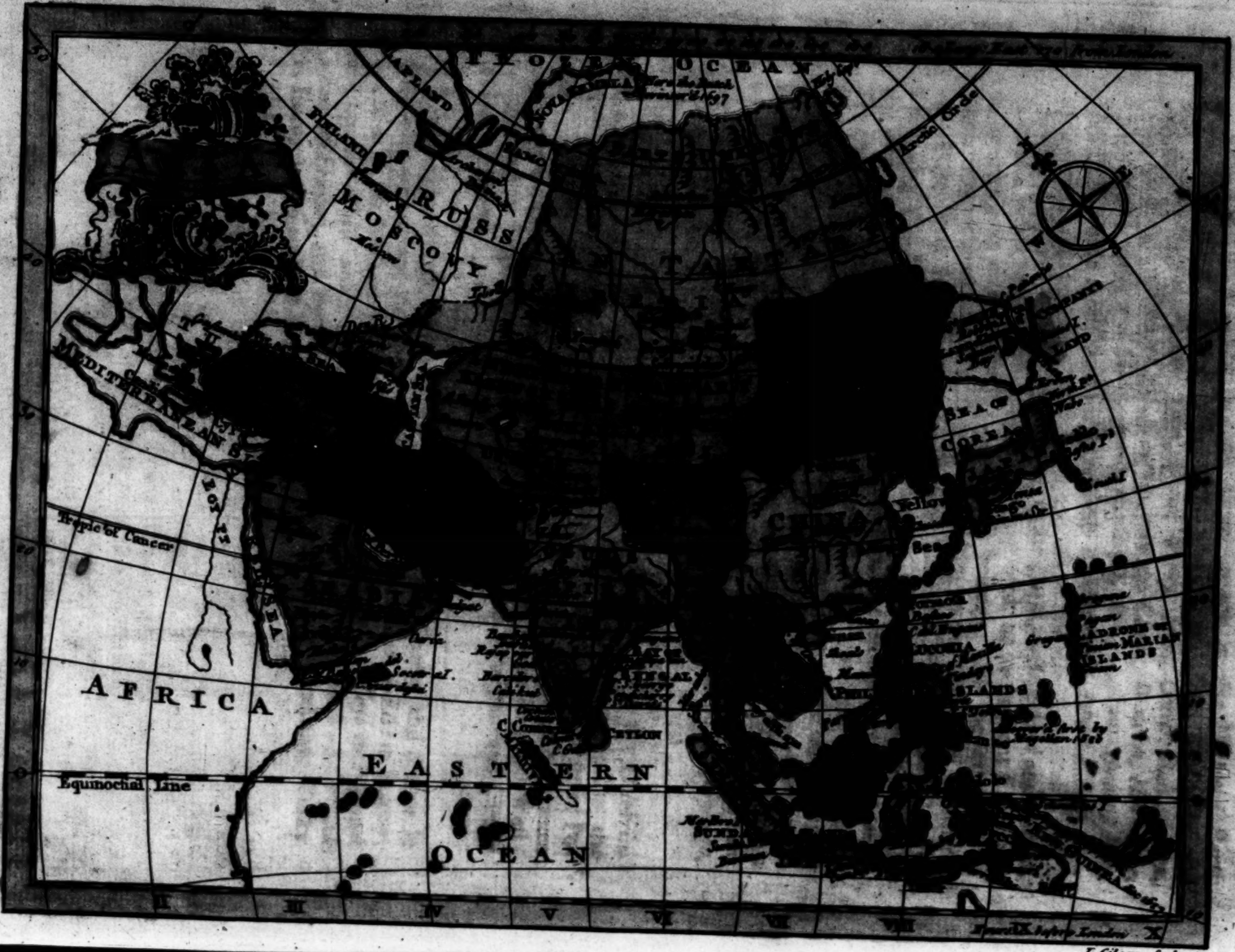

J. Gibson Sculp:

ASIA lies Eaſt of Europe, is about 4800 Miles long and 4300 broad, bounded on the North by the Frozen Ocean, by the Pacific on the Eaſt, by the Red Sea on the Weſt, and the Indian Ocean on the South. This, though the Second, is yet the principal Quarter of the Globe; where our *firſt Parents* were Created, and placed in the Garden of *Eden*; here once ſtood the famous *Tower of Babel.* In this Country our SAVIOUR was born, and compleated our Redemption. *This* was, in ſhort, the Theatre of almoſt every Action recorded in the ſacred Scriptures. 'Tis divided into many principal Regions, whoſe Names, Extent, Chief Cities, *&c.* are as under.

	Nations	Length	Breadth.	Chief City.	Diſt. & Bearing from London.	Diff. of Time from London.	Religions.
Tartary.	Ruſſian	The Bounds of theſe Parts are unlimited, each Power puſhing on his Conqueſts as far as he can.		Tobolſkoi	2160 N. E.	4 10 bef.	Chriſtians and Pagans
	Chineſe			Chynian	4480 N. E.	8 4 bef.	Pagans
	Mogulean			Tibet	3780 E.	5 40 bef.	Pagans
	Independant			Samercand	2800 E.	4 36 bef.	Pagans
	China	1440	1000	Pekin	4320 N. E.	7 24 bef.	Pagans
	Moguls	2000	1500	Delly	3720 E.	5 16 bef.	Mahomet. and Pagans
	India	2000	1000	Siam or Pegu	5040 E.	6 44 bef.	Pagans
	Perſia	1600	1200	Iſpahan	2460 E.	3 20 bef.	Mahometans
Turky in Aſia.	Arabia	1300	1200	Mecca	2640 S. E.	2 52 bef.	Mahometans
	Syria	270	160	Aleppo	1860 E.	2 30 bef.	Chriſt. and Mahomet.
	Holy Land	210	90	Jeruſalem	1920 S. E.	2 24 bef.	Chriſt. and Mahomet.
	Natolia	750	308	Burſa or Smyrna	1440 S. E.	1 48 bef.	Mahometans.
	Diarbeck or Meſapotamia	560	310	Bagdad	2160 E.	2 56 bef.	Mahometans.
	Turcomonia	360	300	Erzerum	1860 E.	2 44 bef.	
	Georgia	• • •	• • •	Teflis	1920 E.	3 10 bef.	

The *Turks*, *Perſians*, *Moguls*, and *Chineſe*, are of good Shape and Complexion: The *Men* wear *Turbants*, *Veſts* and *Slippers*; the *Women* dreſs much like the Men, only they wear a ſtiffened Cap like a *Mitre*, and their Hair down. The *Mogul* Ladies are fond of *Bracelets* on their Arms and Legs; *Rings* on their Fingers and Toes; Jewels in their Noſes; and Pendants in their Ears: and the *Chineſe* Ladies are remarkable for their *little Feet*. In *Siam*, *Pegu*, &c. the Inhabitants are Tawney, and Features Coarſe. The Men wear a Piece of Cloth wrapped round their Waiſt, and pull their Beards (as the Chineſe and Tartars do) up by the Root. The *Women* have, beſides the Piece about their Waiſt, another thrown round their Breaſts and Shoulders, leaving the reſt of the Body bare. The Common People near the Sea go almoſt Naked.

The TRADE of theſe Parts is in *Sables*, *Martins*, *Furs*, *Iron*, *Silk*, *Garoſe*, *Sooſies*, *Carpets*, *Tapeſtry*, *Mohair*, *Muſk*, *Cinnamon*, *Aloes*, *Rhubarb*, *Myrrh*, *Camphire*, *Coffee*, *Incenſe*, *Manna*, *Spices*, *Nutmegs*, *Tea*, *Drugs*, *Quickſilver*; *Diamonds*, and fine *China*, *Laquered* and *Japan* Ware.

In this Quarter are alſo *Camels*, *Dromedaries*, *Buffaloes*, *Elephants*, *Lions*, *Tygers*, *Serpents*, *Locuſts*, *Scorpions*, *Ora-Ootangs* and *Champanzeys*, which are Animals almoſt as big as a Man, and greatly reſemble the Human Shape.

The ISLANDS in *Aſia* are thoſe of *Japon*, as *Japon* itſelf, *Tonſa* and *Bongo*,—alſo *Formoſa*,—the *Baſhee* Iſles, very ſmall—*Aynan* and *Macco*.—The *Ladrone* Iſles, the chief *Guam* and *Tinian*.—The *Phillippine* Iſles 11,000 in Number, chiefly ſmall ones; the principal are *Luconia*, *Mindanao*, and *Tendaye*.—The *Moluccas* or *Clove* Iſlands, the chief *Gilolo*, *Ceram*, *Macaſſar*, *Amboyna*, and *Banda*, where the *Nutmegs* grow.—The *Sunda* Iſles, *Borneo*, *Java*, and *Sumatra*, &c.—The *Andaman* and *Nicobar* Iſles, all ſmall.—The *Maldives*, many Thouſands very ſmall, in the Indian Sea—and *Ceylon*, or fine *Cinnamon* Iſle, near the Coaſt of Coromandel.

Moſt of theſe Iſlands lying near or *under* the *Line*, afford great Quantities of *Sugar* and *Spice*, which the *Dutch* Trade with to all parts of the World. The Inhabitants, who are of a Tawney or Olive Colour, and go almoſt naked, uſe Bows and *poiſoned Arrows*, are Superſtitious and Groſs Idolaters; and in ſome places (it is ſaid) offer their *Children* in *ſacrifice* to their *Idol Gods*.

The principal RIVERS in this Quarter are the *Tigris*, and *Euphrates*, between Arabia and Perſia.—*Tobol* and *Oby* in *Tartary*.—*Indus* in the Mogul's Empire.—*Ganges* in *India*,—the *Hoambo* or *Yellow* River in the North; and the River *Tay*, that runs by Canton, in the South of China.

The Chief MOUNTAINS here are, *Ararat*, near the Caſpian Sea, on which the Ark reſted after the Flood.—*Horeb* and *Sinai* in Arabia.—*Lebanon* in the Holy Land.—Mount *Taurus* running from Eaſt to Weſt of all Aſia.—*Imaus*, in Tartary,—*Caucaſſus* between Tartary, and the Great Mogul's Empire;—and the *Naugracut* Mountains in Tibet.

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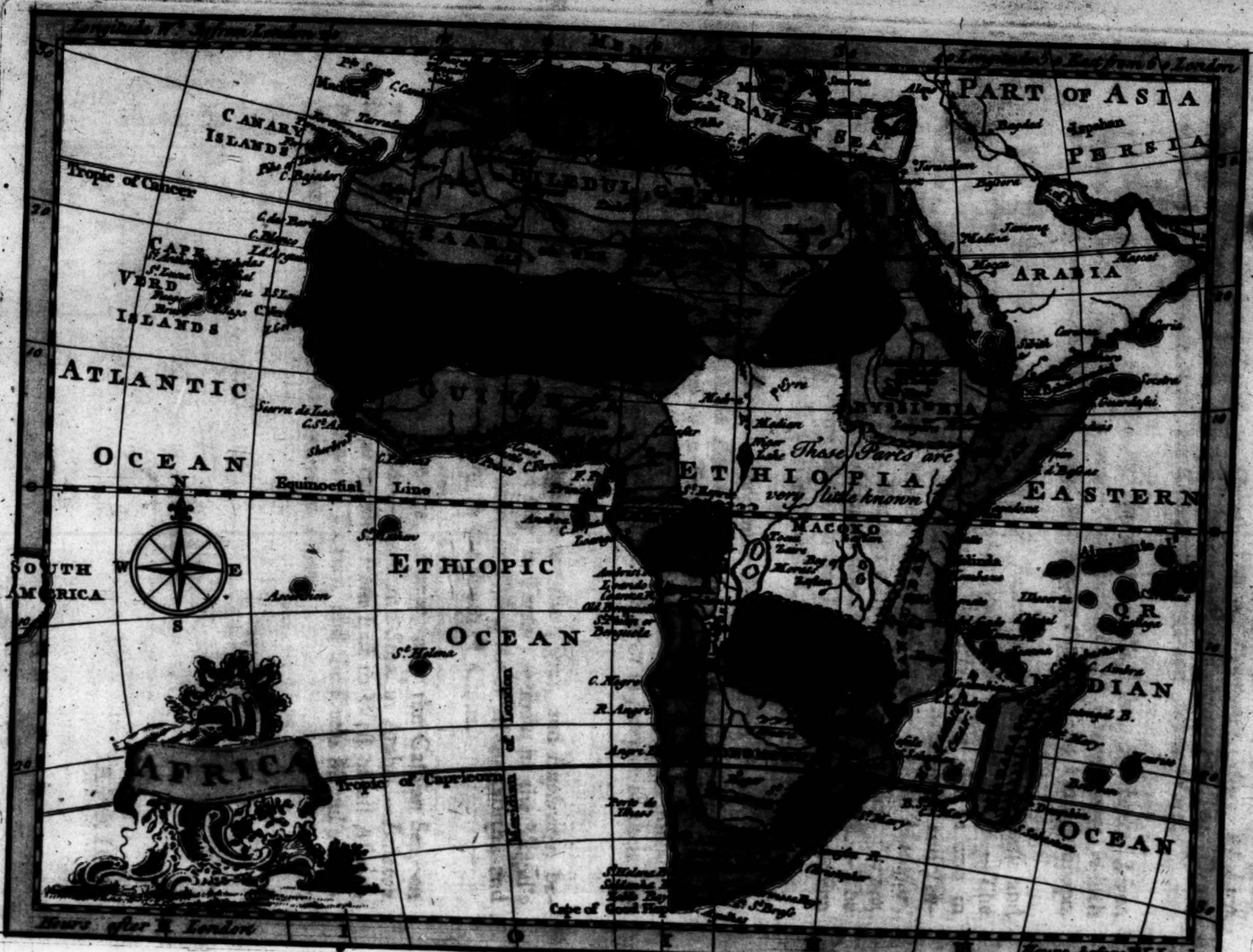

J. Gibson Sculp.

AFRICA is the third Quarter, ſituate to the South of *Europe*, and ſurrounded on all ſides by the Sea, except a narrow Neck of Land about 60 Miles over (called the Iſthmus of *Suez*) which joins it to *Aſia*, at the Top of the Red-Sea. This Country is about 4300 Miles long, and 4200 broad, and lies chiefly in the Torrid Zone; the Equator running through the Middle of it. Here once dwelt the Queen of *Sheba*, who, on paying a Viſit to the Magnificent King *Solomon*, ſtood amazed at the Wiſdom and Glories of his Court. Here we find a Race of People quite BLACK, ſuppoſed to be the Deſcendants of *Cain*; who, for his Cruelty to his Brother, had this Mark ſet upon him. This Quarter is generally divided as under.

	Nations.	Length.	Breadth.	Chief City.	Diſt. & Bearing from London.	Diff. of Time from London.	Religions.
Barbary.	Morocco	500	480	Fez	1080 S.	0 24 aft.	Mahometans
	Algiers	600	400	Algiers	920 S.	0 13 bef.	Mahometans
	Tunis	400	250	Tunis	990 S. E.	0 39 bef.	Mahometans
	Tripoli	700	240	Tripoli	1260 S. E.	0 56 bef.	Mahometans
	Barca	400	300	Tolemeta	1440 S. E.	1 26 bef.	Mahometans
	Egypt	600	250	Grand Cairo	1920 S. E.	2 12 bef.	Mahometans
	Bilidulgerid	2500	350	Dara	1565 S.	0 32 aft.	Pagans
	Zaara	2400	660	Tegeſſa	1840 S.	0 24 aft.	Pagans
	Negroland	2200	840	Madinga	2500 S.	0 38 aft.	Pagans
	Guinea	1800	360	Benin	2700 S.	0 20 bef.	Pagans
Up. Ethiopia.	Nubia	940	600	Doncala	2418 S. E.	2 12 bef.	Mahom. & Pag.
	Abyſſinia	900	800	Gondar	2880 S. E.	2 20 bef.	Chriſtians
	Abex	540	130	Erquiko	3580 S. E.	2 36 bef.	Chriſ. & Pagans
	The *Middle Parts*, called *Lower Ethiopia*, are very little known to the Europeans.						
Lower Guinea.	Loango	410	300	Loango	3300 S.	0 44 bef.	Chriſt. & Pagans
	Congo	540	420	St. Salvador	3480 S.	1 0 bef.	Chriſt. & Pagans
	Angola	360	250	Loando	3750 S.	0 58 bef.	Chriſt. & Pagans
	Benguela	430	180	Benguela	3900 S.	0 58 bef.	Pagans
	Mataman	450	240	• • •	• • •	• • •	Pagans
	Ajan	900	300	Brava	3702 S. E.	2 40 bef.	Pagans
	Zanguebar	1400	350	Mozambique	4440 S. E.	2 38 bef.	Pagans
	Monomotapa	960	660	Monomotapa	4500 S.	1 18 bef.	Pagans
	Monemugi	900	660	Chicova	4260 S.	1 44 bef.	Pagans
	Sofola	480	300	Sofola	4600 S. E.	2 18 bef.	Pagans
	Terra de Natal	600	350	No Towns	• • •	• • •	Pagans
	Caffaria or Hottentots	780	660	Cape of good Hope.	5200 S.	1 4 bef.	Stupid Pagans.

Along the Coaſt of the *Mediterranean*, in *Egypt*, *Bilidulgerid*, and *Zaara*, the People are of a *tawny* Complexion, and dreſs like the Turks: but in all *other parts* of this Quarter, the Inhabitants are BLACK. The better Sort of *Negroes* wear thin Veſts and White Caps, but the Poor go almoſt NAKED, having only a ſmall Piece of Skin, or coarſe Stuff wrapped about their Waiſt. The poor *Hottentots*, daubed over with *Greaſe* and *Soot*, and having their *Arms*, *Legs* and *Neck* wrapped round with the *raw Guts* of Beaſts, make a moſt deſpicable and *naſty* Appearance.

Through *Barbary*, *Nubia*, and *Egypt*, the COMMODITIES are *Rice*, *Figs*, *Raiſins*, *Oranges*, *Lemons*, *Citrons*, *Almonds*, *Pomegranates*, *Olives*, *Senna*, *Dates*, *Leathers*, *Civit*, *Sugar*, and *Indigo*.——In *Negroland* and *Guinea*.—*Oſtriches-Feathers*, *Gold-Duſt*, *Elephants-Teeth*, *Pepper* and *Slaves*, which are chiefly purchaſed by the *Engliſh*, and tranſported to America.——The *Inland* Countries are ſaid to be full of *Lions*, *Tygers*, *Monkeys*, *Rhinoceroſes*, and *Crocodiles*: The Natives are little known. To the *South*, along the Coaſt, the Traffick is *Ambergreaſe*, *Muſk*, *Civit*, *Lemons*, *Millet*, *Pearls*, *Gold-Duſt*, &c. chiefly carried on by the *Dutch* and *Portugueze*; the former of which have a large Settlement at the *Cape of Good Hope*, and the *latter* many on the *Eaſtern* and *Weſtern* Sides of the Continent.

The ISLANDS of this Quarter are, *Madagaſcar* the largeſt; the Inhabitants *black*, *wild*, *ſavage*, *naked*, and under no particular Governor. The Iſlands of *Cape Verde*, 10 in Number. St. *Vincent*, St. *Nicholas*, *Lucia Antonia*, *Sal*, *Bonaviſta*, *Jago*, *Mayo*, *Bravo*, and *Fuego*, all ſubject to the *Portugueze*.——The *Canary* Iſlands, 14 in Number, the Chief, *Teneriff*, *Ferro*, and *Canary*, belong to the Crown of *Spain*.——The *Madeira*, noted for *excellent Wine*, ſubject to the *Portugueze*.——The *Guinea Iſles*, as *Princes*, *Po*, *Annobon*, *Thomas*, *Mathew*, &c. belong to the *Portugueze*. And the Iſles *Aſcention* and St. *Hellen* belong to the *Engliſh*.

The principal MOUNTAINS here are, the *Lybian* Mount, between *Zaara* and *Egypt*;——Mount *Atlas*, between *Barbary* and *Bilidulgerid*, which gives Name to the Neighbouring Ocean, called the *Atlantic* Ocean.——The Mountains of *the Moon* in *Ethiopia*, near the Empire of *Monemugi*.——And the *Pico* or *Peak* in *Teneriff*, one of the *Canary Iſles*, in Form of a Sugar Loaf, ſuppoſed to be the higheſt in the World, and may be ſeen 40 Leagues diſtant.

The moſt Noted RIVERS here, are, the *Nile*, in *Nubia* and *Egypt*:——The *Niger* running through all *Negroland*:——The *Gambia* and *Senegal*, on which the *Engliſh* and *French* have ſome Settlements, are only Branches of the *Niger*.

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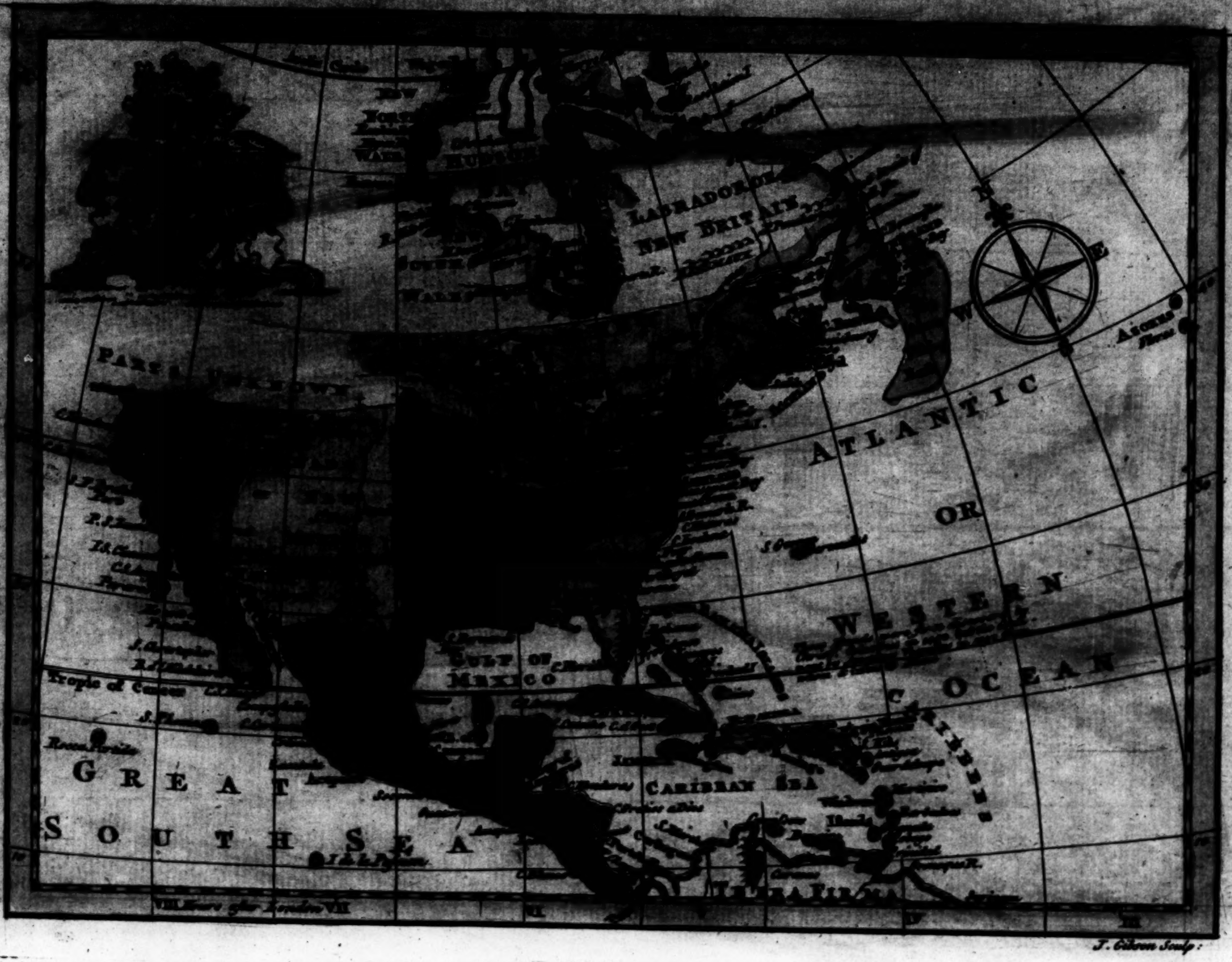

J. Gibson Sculp:

AMERICA is the laſt Quarter of the World: it lies about 2300 Miles Weſt of *England*, and is of vaſt Extent. Bounded on the North by unknown Parts, by the Atlantic Ocean on the Eaſt, by the great South Sea on the South, and Weſt. 'Tis 8 or 9 thouſand Miles in Length, and about 3 thouſand in breadth. It was diſcovered firſt by *Americus Veſputius*, with a *Spaniſh* Fleet, about 1497, and from him takes its Name. It is often called the *Weſt Indies* in Contradiſtinction to the farther Parts of *Aſia*, ſtiled the *Eaſt Indies*, diſcovered by the *Portugueze* a little before; both which Countries were unknown to the *Europeans* till that Time. Nature ſeems to have divided it into two Parts, *North* and *South*, by a narrow Neck of Land, called the Iſthmus of *Darien*, or *Panama*, which in ſome Places is not more than 30 Miles over.

NORTH AMERICA is divided into theſe following Parts.

Nations.	Length.	Breadth.	Chief City.	Diſt. & Bearing from London.	Diff. of Time from London.	Belongs to.
Mexico, or New Spain.	2000	600	Mexico.	4900 N. W.	6 50 aft.	Spain
Granada, or New Mexico	Bounds undetermined.		St. Fee	4320 N. W.	7 0 aft.	Spain
California	Bounds undetermined.		St. Juan.			Spain
Florida	480	360	St. Auguſtine	3690. W.	5 24 aft.	Spain
Canada, or New France	1800	1260	Quebec	2760 W.	4 56 aft.	France
Louiſiana	1400	1000	Fort Louis	4080 N. W.	6 4 aft.	France
Britiſh Colonies	1380	300	Boſton	2760 W.	4 40 aft.	England.

The North Part of the Continent is very little known, and claimed by the *Engliſh*. The chief Places are *Rupert's Fort*, in *Eſkimaux*, or *New Britain*—Port *Nelſon* and *Churchill* in *Canada*, or *New North Wales*.

The *Britiſh* Colonies, or Plantations are, 1. *Nova-Scotia*, the chief Town *Halifax*.——2. *New England*, the chief Town *Boſton*,——3. *New York*, the chief Town *New York*. 4. *New Jerſy*, the chief Town *Elizabeth Town*. ——5. *Penſilvania*, the chief Town *Philadelphia*.——6. *Maryland*, the chief Town *Baltimore*.——7. *Virginia*, the chief Town *James Town*.——8. *Carolina*, the chief Town *Charles Town*.——And 9. *Georgia*, whoſe chief Town is the *Savannah*.

The NATIVES here are generally of a *brown* Complexion; the few that are white ſtain themſelves of a *Copper* Colour; they go naked in the Summer, but in the Winter cover themſelves with the Skins of Beaſts taken in hunting, which is their chief Employ. The *Mexicans* are civil and docile, the reſt ſavage and cruel; they *ſcalp* their Priſoners, and ſometimes (it is ſaid) *broil* and *eat* them. They are groſs Idolaters, and worſhip the *Sun* and *Stars*.

Note; the *Religion*, *Language*, and Dreſs of the ſeveral *Colonies* in *America*, are the ſame of the *European Nations* they belong to.

The COMMODITIES here are *Cotten*, *Silk*, *Skins*, *Furs*, *Feathers*, *Cochineal*, *Mahogany*, *Tobacco*, *Iron*, *Pine-Apples*, *Sugar*, and ſeveral Sorts of *Drugs*.

The chief ISLANDS are, *Newfoundland*, belonging to the *Engliſh*, famous for its Fiſhery.——*Bermudas* or *Summer Iſles* are the Property of *Great Britain*.——Cape *Breton*, *Anticoſti*, and *St. John*'s belong to the *French*.——The *Bahama* Iſles, many in Number, but only *Providence* inhabited, belong to the *Engliſh*.——The *Antilles*, as *Cuba*, *Hiſpaniola*, and *Porto Rico* belong to *Spain*, and *Jamaica* to the *Engliſh*.——The *Caribbe* Iſles, the chief *St. Chriſtophers*, *Anguila*, *Antigua*, *Barbadoes*, belong to the *Engliſh*.——*St. Martin*, *Bartholomew*, *Deſeado*, *Guadaloupe*, *Marigalante*, *Martinico*, and *Granada* belong to the *French*.——*Euſtatia*, and *Saba* belong to the *Dutch*,——and *St. Thomas* to the *Danes*.——Theſe Iſlands produce vaſt Quantities of *Sugar* (in planting of which Thouſands of Negroes are employed) *Tobacco*, *Pepper*, *Yams*, *Indigo*, *Ginger*, *Gums*, *Dying-woods*, *Cocoa*, *Cotten*, *Parrots*, *Fiſh*, *Turtles*, and *Lignum Vitæ*.

The chief MOUNTAINS here are, the *Apalachean* between Carolina and Louiſiana, or Florida.

The moſt remarkable RIVERS are, St. *Laurence*, dividing the *Engliſh* Plantations from *Canada*.——The *Miſſiſippi*, and the *Ohio*, running through *Louiſiana* into the Bay of *Mexico*.

SOUTH AMERICA and the adjoining Islands.

[illegible]

The MOUNTAINS are [illegible] which are said to be the highest in the world, [illegible]

The most famous RIVERS are, *Orinoko* in *Terra Firma*, where the [illegible] the River *Amazons* [illegible] and *Rio de la Plata*, or the River *Plate*, in *Paraguay*.

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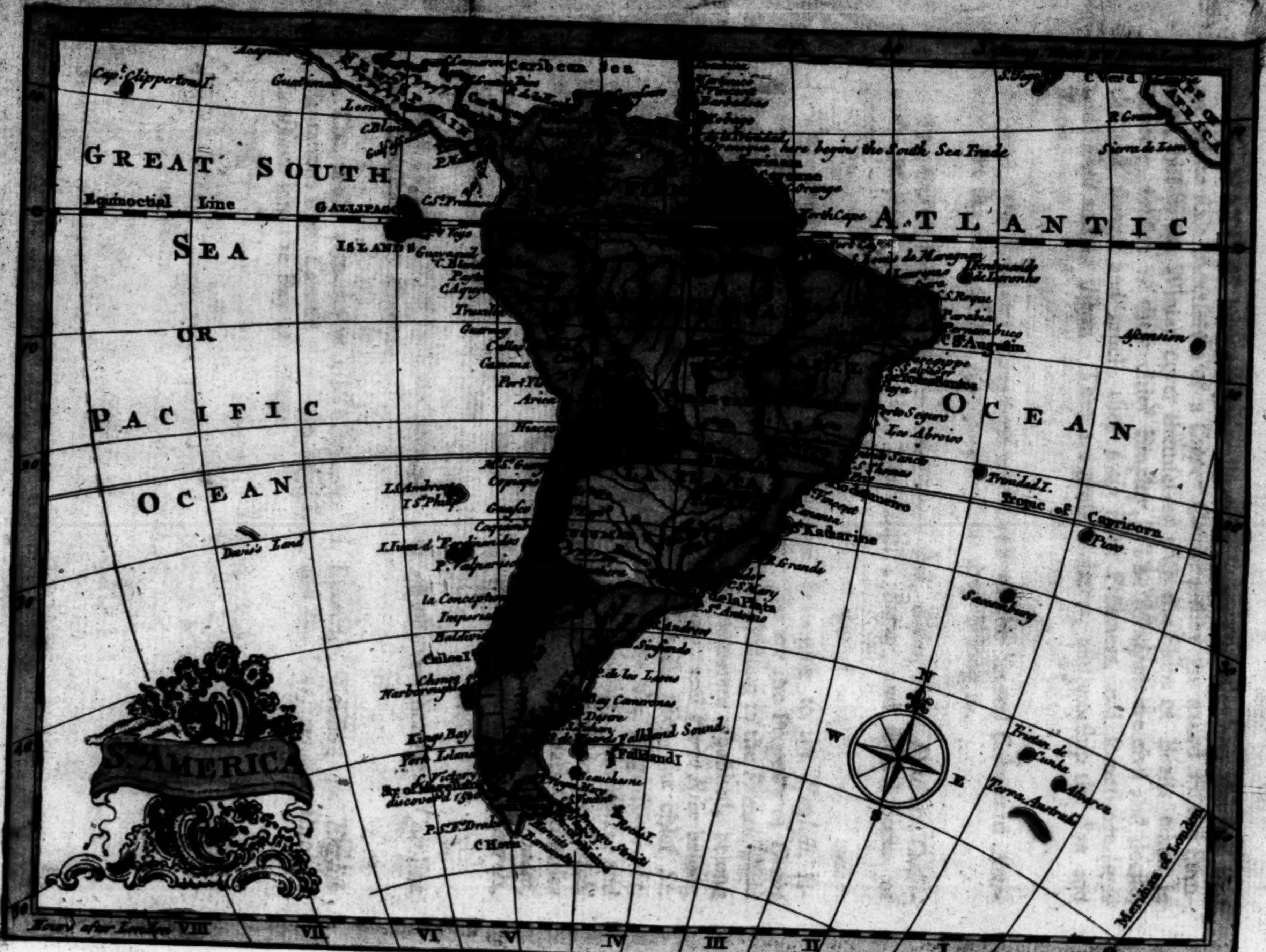


J. Gibson Sculp.

In SOUTH AMERICA are the following Nations.

Nations	Length	Breadth	Chief City.	Diſt. & Bearing from London.	Diff. of Time from London.	Belongs to
Terra Firma	1400	700	Panama	4650 W.	5 28 aft.	Spain
Peru	2000	600	Lima	5520 S. W.	5 4 aft.	Spain
Amazons a very Large Country, but little known to the Europeans, 1200 L. 960 B.						
Guiana	780	480	Surinam Cayenne	3840 S. W.	3 44 aft.	Dutch and French
Braſil	2000	700	St. Salvador	6000 S. W.	3 44 aft.	Portugal
Paraguay	1500	1100	Aſſumption	5640 S. W.	3 52 aft.	Spain
Chili	1200	600	St. Jago	6600 S. W.	5 6 aft.	Spain
Terra Magellanica, or Patagonia	The Spaniards took poſſeſſion of it, but did not think it worth while to ſettle there.					

The COMMODITIES of this Country are Gold, (which in *Peru* was once as plenty as Stones in the Street) *Silver*, *Pearls*, *Tobacco*, *Cochineal*, *Emeralds*, *Jaſpers*, *Amythiſts*, *Ebony*, *Cocoa Nuts*, *Pine Apples*, *Braſil Wood*, *Jeſuits-Bark*, *Amber*, *Roſin*, *Balſam*, *Oſtriches-Feathers*, *Maize*, and ſeveral Sorts of *Metals*.

The INDIANS are generally tall and courageous: Down to the Tropic of Capricorn they are of a *Brown*, or *Copper* Complexion, but farther on tolerably fair. They have little Notion of God, or Religion; are very ſuperſtitious, and groſs Idolaters. They have many odd Cuſtoms; go for the moſt part naked, but paint themſelves of various Colours; uſe Bows and Arrows, and live in Huts, as they do in the Northern Parts. Some of the Natives are ſaid to be *Cannibals*, and worſhip the *Devil*.

The ISLANDS here, are St. *Catherines* and *Trinidad*,—*Chilve*,—*Juan Fernandes*,—and the Iſland *Terra Del Fuego*, ſo called on account of its terrible Volcanoes or burning Mountains, all belonging to *Spain*.—There are many more Iſlands ſcattered about the Great South Sea, but all uninhabited.

The chief MOUNTAINS are, St. *Martha* in Terra Firma:—The *Andees*, which are ſaid to be the higheſt in the World, and run the whole Length of *South America*.

The moſt remarkable RIVERS are, *Oronoko* in Terra Firma, where the South Sea Trade begins;—the vaſt River *Amazon* in *Amazonia*, and *Rio de la Plata*, or the River *Plate*, in *Paraguay*.

The UNKNOWN PARTS of the World, or ſuch as lie under, or near the Pole, are—in the *North*—*Nova Zembla*—*Greenland* and *Groenland*. The Inhabitants are very few, and theſe ſavage, low in Stature, and of an ugly Mien. They live upon the Fleſh of *Whales*, *Bears*, *Foxes*, *Raindeers*, and go muffled up in Skins, the hairy Side next their Bodies. The Sun does not appear in theſe Parts for 3 or 4 Months together in the Winter, and then the Cold is ſometimes ſo intenſe as to *freeze Brandy*. Here alſo lie—*New Britain*—*New North Wales*—*New Denmark*—*Annian*, and *Yeſdo*, all very little known.

Below the *Molucca Iſles* in *Aſia*—are *New Guinea*—*Carpentaria*—*New Holland*—*Dieman's Land*—and *New Zealand*, Regions diſcovered about the middle of laſt Century, or the beginning of this. Our Knowlege of them is very imperfect; the *Natives* are ſaid to be *wild*, *ſavage*, *black*, and go *naked*.

'Tis generally believed that there are many *large Tracts* of Land towards the *South Pole*, which at preſent we know nothing of, and may be reſerved by Providence for future Diſcovery.

Of the TRADE WINDS.

I Cannot conclude without obſerving the wonderful *Phænomenon* of the Trade Winds; I mean, ſuch as always blow from one and the ſame Quarter of the Globe. They are repreſented in the Maps by the *Shades* in and about the *Torrid Zone*, and their Direction is conſtantly the Way the little *Arrows* ſeem directed. In the *Ethiopic*, *Atlantic*, and *Pacific* Oceans (to 30 Degrees from the Equinoctial Line) they are continually found to blow towards the *Weſt*; but in the Bay of *Bengall*, *Arabian*, and *Indian* Seas, the Winds *vary*, blowing one half of the Year *one* Way, and the other the *contrary*; i. e. in the *Summer* they blow N. E. but in the *Winter* S. W. Theſe are called the *periodical* Trade Winds, and by the Sailors *Monſoons*. As the Arrows point their Courſe, ſo the Times of ſhifting are denoted by the Months thereto annexed. All Ships which Trade in theſe Parts are obliged to obſerve the wonted Seaſons; by *that* Means, they never fail of a fair Wind to waft them to the wiſhed for Port, and another to return them *to the Haven where they would be*.

The *Explanation* and *Uſe* of the adjoining MAPS.

THE Map of the WORLD, at the beginning of the Book, repreſents the Globe, taken out of its Horizon, ſqueezed flat, cut through, and turned up again. The Hemiſphere on the Right Hand contains *Europe*, *Aſia*, and *Africa*; that on the Left, *North* and *South America*. The Circles bounding the Projection repreſent the *Braſs Meridian* itſelf. The Top and Bottom are the *North* and *South Poles*; and the Curve Lines uniting there, are the other *Meridians* upon the Globe. The *Equator* is the Strait Line running acroſs the Meridians exactly in the middle. The *Tropics* and *Polar* Circles are delineated at their proper Diſtances on each Side towards the North and South: and the *Ecliptic* is the Serpentine Line, one half of which bends upwards from the Equator to the Tropic of Cancer, and the other half downwards to the Tropic of Capricorn. If you Turn your Eye to the Map, you will find all the Lines, and the ſeveral Countries, deſcribed in their proper Diſtances and Situation, juſt as upon the Globe itſelf; and which View will give you a better Idea than all the verbal Deſcriptions in the World.

The other Maps, *Viz.* of *Europe*, *Aſia*, *Africa*, and of *North* and *South America*, which are bordered with a Square, are only Parts of a larger Projection, in order to exhibit each Particular Country, and its Contiguous States more Diſtinct. The Top is always the *North*; the Bottom the *South*; the Right Hand *Eaſt*; the Left Hand *Weſt*; when 'tis otherwiſe, there is always a *Compaſs* annexed to point the Contrary. The Lines running from Top to Bottom are part of the Meridians; and thoſe from Side to Side are Parallels of Latitude, which are generally drawn 10 Degrees Diſtant, or 600 Miles aſunder from each other.

Maps are uſed not only to exhibit the True ſhape of Countries, but alſo, the *Longitude* and *Latitude* of Places, and their *Diſtances*, and *Bearing*, or Situation from one another.

(1ſt,) To find the LATITUDE of any Place.

Look the Place; then run with a Pencil, or your Finger, to either the Right or Left-Hand-ſide, keeping the ſame Diſtance between the Lines above and below it, and the Degree you meet with there, is the Latitude required.

Thus the Latitude of *London* you'll find to be about 51 and 1-half, and Latitude of *Dublin* 53 Degrees.

(2d,) To find the LONGITUDE of any Place.

Only run your Pencil or Finger from it, to the Top or Bottom of the Map, and the Degree againſt it is the Longitude required.

Thus the Longitude of *Rome* is about 13 Degrees to the Eaſt; and *Liſbon* about 9 to the Weſt.

(3rd,) The LONGITUDE and LATITUDE being given, to to find the Place.

Look the Longitude at the Top or Bottom; and the Latitude on the Right or Left-Hand, then run your Fingers acroſs the Map till theſe two Lines meet, and that is the exact Situation of the Place.

Note; By this Method any Town may be inſerted, when the Longitude and Latitude of it are known, and the Place is not in the Map already.

(4th,) To find the Difference in TIME between us in *England*, and any other Place; and conſequently to know what o'Clock it is at any Place in the World.

Having looked the Place; only bring your Finger down to the Bottom of the Map, and there you will find the Difference either before or after us, the Time being figured on the Maps.

Thus at *Conſtantinople*, the Reſidence of the Great Turk, it is always 2 Hours before us: but at *Jamaica* in the Weſt Indies, the Time is 5 Hours after us.

(5th,) To Meaſure the DISTANCE and POSITION of one Town from another.

If the Places lie under the ſame Meridian, only count the number of Degrees between them; theſe multiplied by 60 gives the Diſtance required.—— But if the Places lie in any other Direction, then, with a Pair of Dividers, open from one to the other; apply this opening to the Meridian, which runs equally between them, (remembering to place the Legs equally above and below the Parallels, which run through thoſe Places) then count the Degrees on the Side of the Map, between the two Points of the Dividers, which Degrees, multiplied by 60, will give the Diſtance as before.

The little *Compaſs* you find inſerted will ſhew how the Places *bear* from each other.

Thus the Diſtance from *London* to *Vienna* in *Germany* is about 11 Degrees or 660 Miles almoſt Eaſt; and to *Dublin* in *Ireland* is about 4 ½ Degrees or 255 Miles North Weſt.

The Difference of the MILES in ſeveral Countries is very Great, but it will be uſeful to remember, That

The ENGLISH and ITALIAN are nearly the ſame.
The GERMAN MILE is about 4 ENGLISH.
A FRENCH League is 2 of our own Miles.
An ENGLISH League is 3 of our own Miles.
The SWEDISH, DANISH, and NORWAY Mile is about five Engliſh, or ſomething more.

Note; If the whole LAND be ſuppoſed to be divided into 100 Parts,

Europe	will be about	12	of thoſe Parts.
Aſia		27	
Africa		26	
America		35	

Note alſo, the RILIGIONS in the World are four.—*Pagans*—*Jews*—*Chriſtians*—and *Mahometans*, which have ſome little Differences and Diſtinctions among themſelves.

If we ſuppoſe all the Inhabitants on the Earth to be divided into 30 equal Parts,

The Pagans	will be about	18	of thoſe Parts.
The Jews		1	
The Chriſtians		5	
The Mahometans		6	

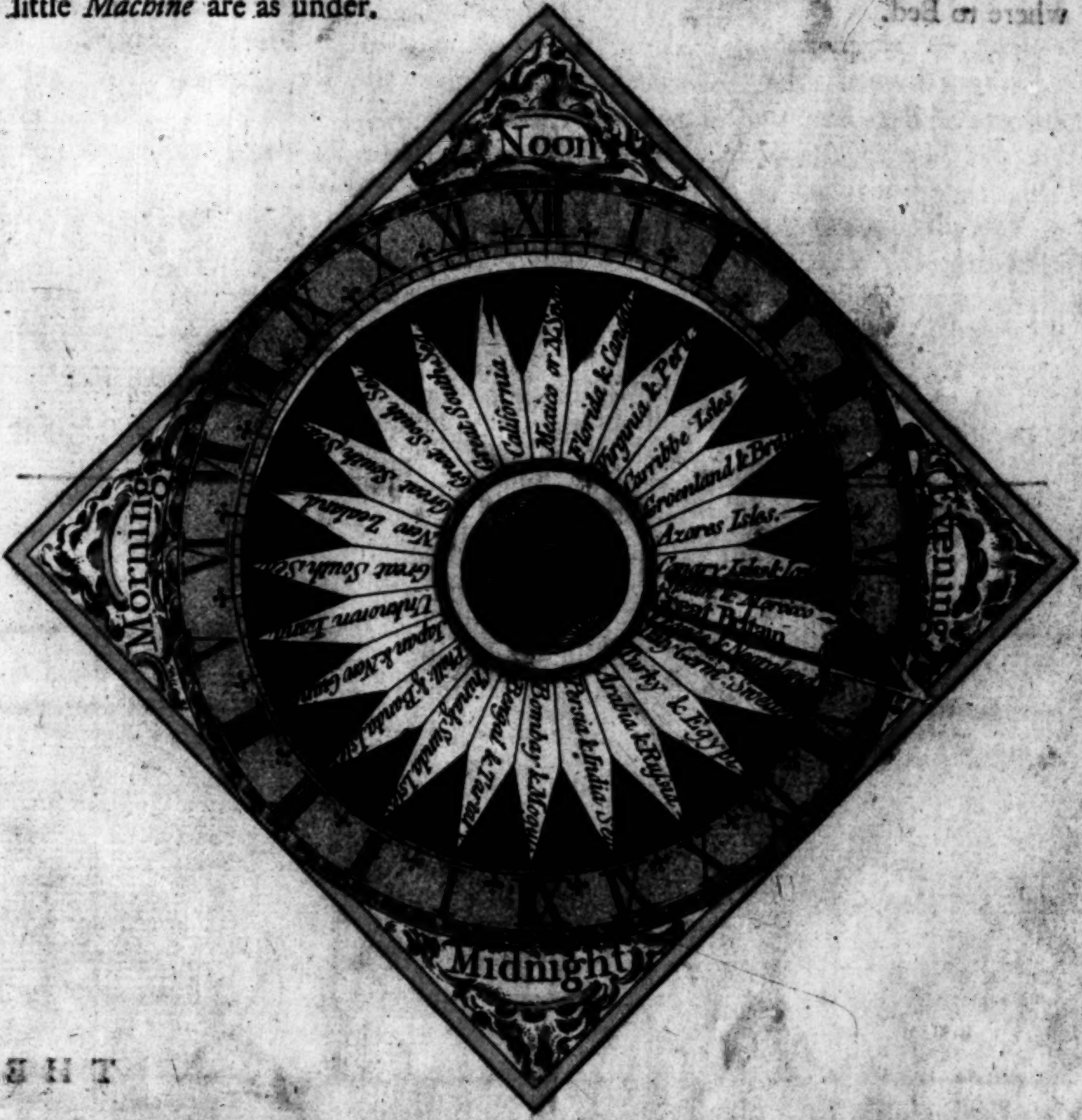
THE

EXPLANATION and USE

OF THE

GEOGRAPHICAL CLOCK.

THE outer Circle, which is fixed, and divided into twice XII. repreſents the 24 Hours of Day and Night: The moveable Circle within has the Capital Kingdoms and Nations of the Earth inſcribed according to their Longitude; or Difference in Time from each other. The Top is always *Noon*; the Bottom *Midnight*; the Left-hand Side is *Morning*; the Right-hand *Evening*; as the Figure itſelf points out. Some of the many Uſes of this little *Machine* are as under.



Bring *Great Britain* to the Hour on the outer Circle, that it is by your Watch; then againſt the ſeveral Countries inſerted in the moveable Circle, you have the Time of *Day* or *Night* at thoſe Places at one View.

Thus, when 'tis 10 in the *Morning* with us in *Britain*—'tis *almoſt* 10 at the Courts of *Spain* and *Morocco*;—a little *paſt* 10 at *France* and *Negroland*;—about 11 through *Italy*, *Germany*, and *Sweden*.—*Noon* at the Reſidence of the *Great Turk*, and with the *Egyptians*, &c.——3 in the *Afternoon* at our Settlements at *Bombay* and the *Moguls*;—5 at *China*;—10 at *Night* at *New Zealand*, which are nearly our *Antipodes*.—*Midnight* to thoſe Sailing in the Great *South Sea*;—3 in the *Morning* at *Mexico* or *New Spain*;—5 at *Virginia* and *Peru*;—7 at *Groenland* and the *Braſils*;—and 9 at the *Canary Iſles* and *Iceland*.

Hence alſo, at one view, you may ſee at every Hour of the Day how the whole World is engaged, and what the ſeveral Inhabitants are ſuppoſed to be employed in.—You may ſee where they are *Riſing*,—where *Breakfaſting*;—*Dining*;—*Drinking Tea*;—where going to *Supper*, or *Aſſemblies*;—and where to Bed.

The D[illegible] Globe

[illegible]

(1.) The [illegible] Globe parts or perform the [illegible] the North [illegible]

(2.) [illegible] Quarter into 90 Degrees; the [illegible] the Pole; but the lower [illegible] Circle round the Globe and [illegible]

(3.) The [illegible] the Globe; the upper Part of it [illegible] Circles drawn upon it. [illegible] the Zodiac, through which [illegible] divided into single Degrees [illegible] the third, the Gregorian Kalendar; [illegible] Days. —On the outside [illegible] Points of the Compass.

(4.) The Hour Circle, [illegible] round the North Pole; which Pole [illegible]

[illegible] Degrees [illegible] Meridian [illegible] Cancer and Capricorn [illegible] corresponding to the [illegible]

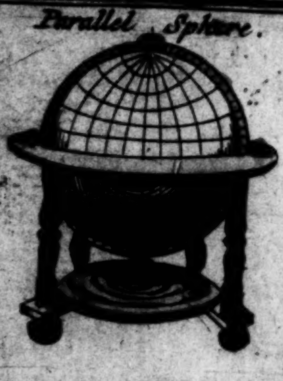
15 APR 72

E'er half the School *Authors be Read it will be seasonable for* Youth *to learn the Use of the* Globes.

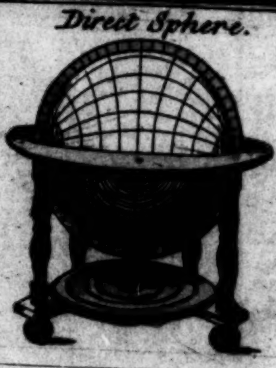
Milton on Education.

The GLOBE *or Sphere in its Three Different* Positions.

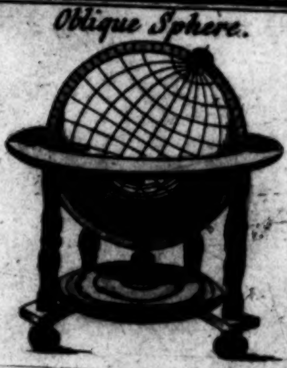
Parallel Sphere.



Direct Sphere.



Oblique Sphere.



J. Gibson Sculp.

Globes of any size from 3. *to* 28. Inches *Diameter are to be had of* Mr. N Hill *opposite Serjeants Inn*
Chancery Lane London. elegantly fitted up for Gentlemen & Ladies *at the most Reasonable* Price.

The Deſcription and Uſe of the Terreſtrial Globe.

THE *Terreſtrial Globe* is an Artificial *Sphere*, or round *Ball*, upon whoſe Surface are exactly delineated the chief *Kingdoms*, *Nations*, and *Cities* on the Earth, in their proper *Situations* and *Diſtances*, juſt as they are in *Nature*.

This Curious *Inſtrument* conſiſts of ſeveral Parts.

(1.) The 2 *Poles* (being the Ends of the Axis, on which the Globe turns to perform the Diurnal Motions) repreſenting thoſe of the World: The upper is the *North Pole*, and the lower the *South Pole*.

(2.) The *Braſs Meridian* divided into 4 Quarters, and each Quarter into 90 Degrees: the upper Part is graduated from the Equator towards the Poles; but the lower Part from the Poles towards the Equator. This Circle ſurrounds the Globe, and is conjoined to it at the Poles themſelves.

(3.) *The Wooden Horizon*, or *Frame*, which ſupports the whole Globe; the upper Part of it repreſents our *true Horizon*, and has ſeveral Circles drawn upon it.——The firſt, next the Globe, contains the 12 *Signs* of the *Zodiac*, through which the Sun or Earth revolves in a Year; theſe are ſubdivided into ſingle Degrees.——The next Circle exhibits the *Julian*, and the third the *Gregorian* Kalendar (or *Old* Stile and *New* Stile) divided into *Months* and Days.——On the outſide of theſe are generally delineated the 32 *Points* of the *Compaſs*.

(4.) The *Hour Circle*, divided into twice 12 Hours, fitted to the Meridian round the North Pole; which Pole carries a little *Index* pointing to the Hour.

(5.) A thin ſlip of Braſscalled a *Quadrant of Altitude*, divided into 90 Degrees, to be faſtened occaſionally to the Top of the Meridian, in order to meaſure the *Diſtances* and *Directions* of Places from each other.

(Laſtly,) On the Surfaceof the Globe itſelf are alſo delineated the *Equinoctial* Line, divided into 180 Degrees each Way from the firſt Meridian:——The *Ecliptic* [*] divided into the 12 Signs, and each Sign into 30 Degrees;——the *Tropics* of Cancer and Capricorn;——the 2 *Polar* Circles;——and the 24 *Meridians*, correſponding to the 24 Hours of the Day and Night.

[*] The *Ecliptic Line* repreſents that Path in the Heavens, which the Sun ſeems to deſcribe by the Earth's annually revolving round it. 'Tis divided into 12 equal Parts, and each of thoſe into 30 more, correſponding to the 12 Months and the Days of the Months. The *Names* and *Characters* of the 12 Signs, with the Time of the *Sun's Entrance* into each, is as follows.

Aries	*Taurus*	*Gemini*	*Cancer*	*Leo*	*Virgo*	*Libra*	*Scorpio*	*Sagitarius*	*Capricornus*	*Aquarius*	*Piſces.*
♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓
Mar. 20.	Apr. 20.	May 21.	June 22.	July 23.	Aug. 23.	Sept. 23.	Oct. 24.	Nov. 22.	Dec. 22.	Jan. 20.	Feb. 19.

The USE of this curious *Mathematical* Inſtrument, is to point out the various *Phænomena* belonging to the different *Nations* and *Inhabitants* of the World, with Reference to their *Diſtance*, *Poſition*, *Varieties of Days* and *Nights*, *Changes* and *Revolutions* of the *Seaſons*; in an eaſy and natural Manner, without the Trouble of long and tedious Calculations.

The moſt USEFUL PROBLEMS are theſe, which follow.

PROBLEM I. To find the *Latitude* of any Place.

Only bring the Place to the *Braſs Meridian*, and the Figure that ſtands over it ſhews its *Latitude*, or Diſtance from the Equinoctial.

Degrees
Thus the Latitude of *London* is——51 and ½ *North*.
Jeruſalem is——32 *North*.
and the *Cape of Good Hope*——34 and ½ *South*.

Note, If a Place lies on the North Side of the Equinoctial Line, it has *North Latitude*; but if on the South Side, it has *South Latitude*.

Note, The Latitude of a Place can never be more than 90 Degrees either *North* or *South*.

PROBLEM II. To find the *Longitude* of any Place.

Bring the Place to the *Braſs Meridian*; then obſerve the Degrees the Meridian cuts on the Equinoctial, and that is its *Longitude*, or Diſtance in Degrees either Eaſtward or Weſtward, from the firſt Meridian; which, in ſome Globes, begins at *Ferro*, but on the new ones at *London*.

Degrees.
Thus the Longitude of *Mecca* in *Arabia* is——43 ½ *Eaſt*.
And the Longitude of *Port Royal* in Jamaica is 77 *Weſt*.

Note, The *Longitude* of a Place can never be more than 180 Degrees either *Eaſt* or *Weſt*.

PROBLEM III. To *rectify* the Globe, (i. e.) to prepare it for the Solution of any Problem.

Having turned the graduated Side of the Meridian towards you, move it higher or lower till the Pole ſtands as many Degrees above the Horizon as the Latitude of the Place is, you would rectify for. Thus, if the Place be *London*, you muſt raiſe the Pole 51 ½ Degrees, (becauſe that is the Latitude of it) and that brings this City to the Top or Zenith of the Globe, and over the Center of the Horizon; then turn the North Pole of the Inſtrument to the North Part of the World, which may be done by means of a little Compaſs, and the Globe will repreſent the natural Situation of the Earth itſelf.——

Note; In all Problems relating to *North Latitude*, you muſt elevate the *North Pole*; but in thoſe that have *South Latitude*, you muſt raiſe the *South Pole*.—

The *North Pole* muſt always incline to that Part of the Horizon marked *June*; and the *South Pole* to that marked *December*.

PROBLEM

PROBLEM IV. To find the *Sun's Place* in the Ecliptic.

Look the Day of the Month in the outer Calendar upon the Horizon, (if the Globe was made before the Alteration of the Stile) and oppoſite to it, you will find the *Sign* and *Degree* the Sun is in that Day.—Thus on the 25th of *March*, the Sun's Place is 4 ½ Degrees in *Aries*.—Then look for that Sign and Degree upon the Ecliptic Line marked on the Globe, and there fix on a ſmall black Patch, ſo is it prepared for the Solution of the following Problems.

Note; The *Earth*'s Place is always in the Sign and Degree *oppoſite* the *Sun*; thus when the Sun is 4 ½ Degrees in *Aries*, the Earth is 4 ½ Degrees in *Libra*; and ſo of any other.

PROBLEM V. To find the Sun's *Declination*; that is, his Diſtance from the Equinoctial Line either *Northward* or *Southward*.

Bring his Place to the Meridian, and obſerve what Degree of the Meridian lies over it, and that is his Declination. If the Sun is on the North Side the Line, he is ſaid to have *North Declination*; but if on the South Side, he has *South Declination*.

Thus on the 20th of *April* the Sun has 11 ½ Degrees *North Declination*, but on the 26th of *October*, he has 12 ½ *South Declination*.

Note; The greateſt Declination can never be more than 23 ½ Degrees, either *North* or *South*.

PROBLEM VI. To find where the Sun is *Vertical* on any Day:—That is, to find over whoſe *Heads* the Sun will paſs that Day.

Bring the Sun's Place to the Meridian, obſerve his Declination, or hold a Pen or Wire over it, then turn the Globe round, and all theſe Countries which paſs under the Wire will have the Sun over their Heads that Day at Noon.

Thus on the 16th of *April* the Inhabitants of the North Part of *Terra Firma*, *Porto Bello*, *Philippian Iſles*, *Abyſſinia*, *Ethiopia* and *Guinea*, have the Sun over their *Heads* that Day at 12 *o'Clock*.

Note; This *Appearance* can only happen to thoſe who live in the *Torrid Zone*.

The Sun's *Longitude*, *Right* and *Oblique Aſcenſion*, *Azimuth*, &c. ſhall be conſidered and explained in the Uſe of the *Cæleſtial Globe*.

PROBLEM VII. To find over whoſe *Heads* the Sun is at any *given Hour*.

Bring the Place where you are to the Meridian, ſet the Index to the given Hour by your Watch, then turn the Globe till the Index points to the upper 12, or Noon, look under the Degree of Declination for that Day, and that is the Place to which the Sun is Vertical, or over its Head at that Time.

Thus on the 13th of *May*, a little paſt 5 in the Afternoon at *London*, I find the Sun is then over the *Heads* of thoſe who live at *Port Royal* in *Jamaica* in the *Weſt Indies*.

Note; If it be Morning, the Globe muſt be turned from Eaſt to Weſt: If in the Afternoon, it muſt be turned from Weſt to Eaſt.

PROBLEM VIII. To find, at any Hour of the Day, what *o'Clock* it is at any Place in the World.

Bring the Place to the Meridian, that is, the Place where you are; ſet the Index to the Hour by your Watch, turn the Globe till that Place you are looking for comes under the Meridian, and the Index will point out the Time there required.

Thus when it is 6 o'Clock in the Evening at *England*—'tis half an Hour *paſt* 8 at Night at *Jeruſalem*.—*Midnight* at the Palace of the *Great Moguls*.—2 in the *Morning* at *Pekin*.—7 in the Middle of the *Great South Sea*;—and *Noon* at *Florida* and the *Iſthmus* of *Panama*.

Note; By this Problem you may likewiſe ſee, at one View, in diſtant Countries, where the Inhabitants are *Riſing*—where *Breakfaſting*—*Dining*—*Drinking Tea*;—where going to *Aſſemblies*,—and *where to Bed*.

PROBLEM IX. To find at what Hour the Sun *riſes* and *ſets* any Day in the Year.

Rectify the Globe for the Latitude you are in; bring the Sun's Place to the Meridian, and ſet the Index to 12; then turn the Sun's Place to the *Eaſtern* Edge of the Horizon, and the Index will point out the Hour of *riſing*; if you bring it to the *Weſtern* Edge of the Horizon, the Index will ſhew the *ſetting*.

Thus on the 16th Day of *March*, the Sun roſe a little paſt 6, and ſet a little before 6.

Note; In the Summer the Sun riſes and ſets a little to the *Northward* of the Eaſt and Weſt Points, but in Winter, a little to the *Southward* of them. If therefore, when the Sun's Place is brought to the Eaſtern and Weſtern Edges of the Horizon, you look on the inner Circle right againſt the little Patch, you will ſee the *Point of the Compaſs* upon which the Sun riſes and ſets that Day.

PROBLEM X. To find the *Length* of the *Day* and *Night* at any Time of the Year.

Only *double* the Time of the Sun's *riſing*, and it gives the Length of the *Night*; *double* the Time of *ſetting*, and it gives the Length of the *Day*.

This Problem ſhews how long the Sun's ſtays with us any Day, and how long he is abſent from us any Night.

Thus on the 26th of *May* the Sun riſes about 4 and ſets at 8; therefore the *Day* is 16 Hours long; and the *Night* 8.

PROBLEM XI. To find the Length of the *longeſt* or *ſhorteſt Day* at any Place upon the Earth.

Rectify the Globe for that Place, bring the Beginning of *Cancer* to the Meridian; ſet the Index to 12, then bring the ſame Degree of *Cancer* to the *Eaſt* Part of the Horizon, and the *Index* will ſhew the Time of the Sun's *Riſing*.

If the ſame Degree be brought to the *Weſtern* Side, the Index will ſhew the *Setting*, which *doubled* (as in the laſt Problem) will give the Length of the *longeſt Day* and *ſhorteſt Night*.

If we bring the Beginning of *Capricorn* to the Meridian, and proceed in all Reſpects as before, we ſhall have the Length of the *longeſt Night* and *ſhorteſt Day*.

Thus in the great *Mogul's Dominions*, the *longeſt Day* is 14 Hours; and the ſhorteſt Night 10 Hours. The *ſhorteſt Day* is 10 Hours, and the longeſt Night 14 Hours.

At *Peterſburg*, the Seat of the Empreſs of *Ruſſia*, the longeſt Day is about 19 ½ Hours, and the ſhorteſt Night 4 ½ Hours. Shorteſt Day 4 ½ Hours, and longeſt Night 19 ½ Hours.

Note; In all Places near the *Equator*—the Sun riſes and ſets at 6 the Year round.——From thence to the *Polar Circles*, the Days increaſe as the Latitude increaſes; ſo that at thoſe Circles themſelves, the longeſt Day is 24 Hours, and the longeſt Night juſt the ſame.——From the *Polar Circles* to the *Poles*, the Days continue to lengthen even into Weeks and Months; ſo that at the very Pole, the Sun ſhines for 6 Months together in Summer, and is abſent from it 6 Months in Winter.——Note; That when it is Summer with the Northern Inhabitants, 'tis Winter with the Southern, and the contrary; and every Part of the World partakes of an equal Share of Light and Darkneſs.

PROBLEM XII. To find all thoſe Inhabitants to whom the Sun is this Moment *riſing* or *ſetting*, in their *Meridian* or *Midnight*.

Find the Sun's Place in the Ecliptic, and raiſe the Pole as much above the Horizon as the Sun (that Day) declines from the Equator; then bring the Place where the Sun is Vertical at that Hour to the Braſs Meridian; ſo will it then be in the *Zenith* or Center of the Horizon. Now ſee what Countries lie on the *Weſtern* Edge of the Horizon; for in them the Sun is *riſing*;—to thoſe on the *Eaſtern* Side he is *ſetting*;—to thoſe under the upper Part of the Meridian 'tis *Noon Day*:—and to thoſe under the *lower* Part of it, it is *Midnight*.

Thus on the 25th of *April* at 5 o'Clock in the Evening at *Worceſter*.

The Sun is *riſing* at	*New Zealand*; and to thoſe who are ſailing in the Middle of the *Great South Sea*.
The Sun is *ſetting* at	*Sweden*, *Hungary*, *Italy*, *Tunis*, in the Middle of *Negroland*, and *Guinea*.
In the *Meridian* (or *Noon*) at	the Middle of *Mexico*; Bay of *Honduras*, Middle of *Florida*, &c.
Midnight at	the Middle of *Tartary*, *China*, *India*, and *Sunda Iſles*.

PROBLEM XIII. To find the Beginning and End of *Twilight*.

The *Twilight* is that ſaint Light, which opens the Morning by little and little in the Eaſt, before the Sun riſes; and gradually ſhuts in the Evening after the Sun is ſet. It ariſes from the Sun's illuminating the upper Part of the *Atmoſphere*, and begins always when he approaches within 18 *Degrees* of the Eaſtern Part of the Horizon, and ends when he deſcends 18 Degrees below the Weſtern; when dark Night commences, and continues till Day breaks again.

To find the *Beginning of Twilight*—Turn the Degree of the *Ecliptic*, which is oppoſite to the Sun's Place, till it is elevated 18 Degrees in the *Quadrant of Altitude* above the Horizon on the *Weſt*, ſo will the Index point the Hour Twilight begins.

To find when it *ends*—Bring the ſame Degree of the Ecliptic to 18 Degrees of the Quadrant on the Eaſt Side, and the Index will point the Time Twilight ends.

Thus on *May* 16 at *London*, Twilight begins a little after 1 in the Morning; and ends a little before 11 at Night.— In theſe Parts we have no total Night, but a conſtant Twilight from the 26th of May to the 20th of July following, which is about 2 Months.

Note; The Reaſon we uſe the Place oppoſite the Sun in this Problem, and raiſe it *above* the Horizon, is, becauſe the Quadrant of Altitude is not long enough, nor graduated to 18 Degrees below the Horizon.

PROBLEM XIV. To meaſure the *Diſtance* from one Town to another.

Only take their Diſtance with a Pair of Dividers, and apply it to the Equinoctial, that will give the Number of Degrees between them, which being multiplied by 60, (the Number of *Geographical* or *computed Miles* in one Degree) gives the exact Diſtance ſought:——Or, extend the Quadrant of Altitude from one Place to the other, that will ſhew the Number of Degrees in like Manner, which may be reduced to Miles as before.

Thus the Diſtance from *London* to *Madrid* is 12 Degrees. From *Paris* to *Conſtantinople* 21 Degrees. From *Briſtol* to *Boſton* in *New England* 45.
60
——
computed Miles 2700

PROBLEM XV. To find the *Poſition*, or upon what *Point of the Compaſs* one Town or Country bears from one another.

Rectify the Globe to the Latitude of one of the Places, and bring it to the Meridian; then extend the Quadrant of Altitude (it being fixed over that Place) to the other, and the End will point out upon the Horizon the Poſition, and thereby ſhew in what Part of the World it lies directly from the other.

Thus, ſuppoſe it was required to know the Poſition of *Rome* from *London*. ——The Globe being rectified, *London* brought to the Meridian, and the Edge of the Quadrant of Altitude laid to *Rome*, you will find the End fall againſt that Part of the Horizon marked S. E. at the ſame Time you will ſee, as in the laſt Problem, that the Diſtance is about 14 Degrees, which is 840 Miles. So that a Bomb thrown from hence, 840 Miles upon the *South Eaſt Point*, would fall exactly at *Rome*, and put the Inhabitants there in great Conſternation.

PROBLEM XVI. To find all thoſe Countries in which an *Eclipſe* of the *Sun* or *Moon* will be viſible.

1. Of *the* SUN: Bring the Place to which the Sun is *vertical* at the Time of the Eclipſe, to the *Zenith*, or Top of the Globe; then to all thoſe Places above the Horizon, if the Eclipſe be large, will the Sun appear (Part of it) viſibly obſcured.

2. Of *the* MOON. Bring the *Antipodes*, or Country oppoſite to the Place where the Sun is vertical, to the *Zenith* or Top of the Globe, and then the *Eclipſe* will be ſeen in *all* Places above the Horizon at that Time.

PROBLEM XVII. To find the *Diſtance* of any Place in whoſe *Zenith* the *Sun*, or any *Star* or *Comet* is at that Time.

Take the Sun's, Star's, or Comet's Altitude with a Quadrant in Degrees, ſubtract it from 90; the Remainder gives the Diſtance of the Sun or Comet from your own Zenith; which multiply by 60, the Product will give the Miles between you and the Place in whoſe Zenith the Sun or Comet is at that Time.

Thus, ſuppoſe the Height of the Sun, on any Day, be about 37 Degrees; then 37 ſubtracted from 90, leave 53 for its Diſtance from you; which multiply by 60, gives 3180; and ſo many computed Miles it is to the Place over which the Sun is at that Time.——Note; the Sun itſelf will point the Way to it.

PROBLEM XVIII. To calculate the *Circumference of the Earth* (that is) to find how many Miles it is *round* it.

A Line going round our Globe, is ſuppoſed by Mathematicians to be divided into 360 equal Parts, called Degrees; and each of thoſe Parts are ſuppoſed to be divided into 60 other equal Parts, called Minutes. Now our Countryman, Mr. *Norwood*, found by accurately meaſuring from *London* to *York* in 1635, that one Degree upon the Earth's Surface contained 69 $\frac{1}{2}$ *Statute Miles*; conſequently if the whole 360 Degrees be multiplied by 69 $\frac{1}{2}$, or 70, which is near enough, we ſhall find the Circuit of the whole Earth, in meaſured Miles, to be 25200.

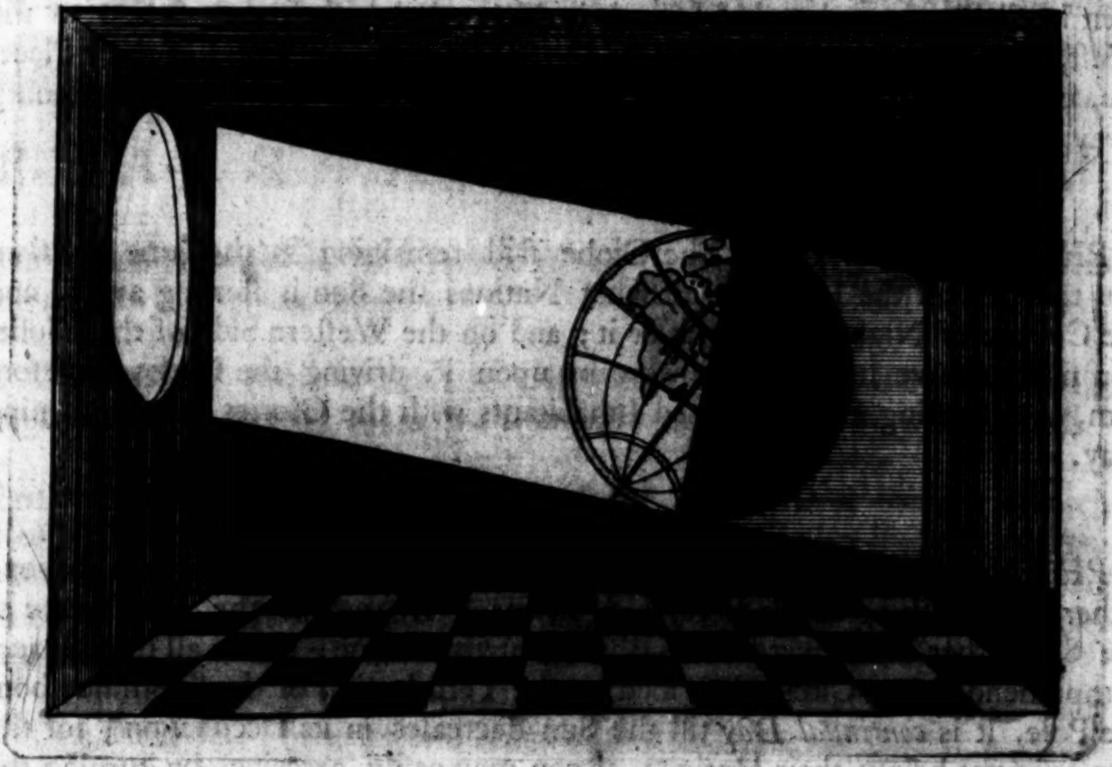
Note; 60 computed Miles make a Degree, which makes the Circumference to be but 21600 Miles.

PROBLEM XIX. To calculate the *Diameter* of the Earth, (i. e.) to find how many Miles it is *through*.

It has been found by accurate Menſuration, that if a Circle meaſures 22 round, its Diameter will be exactly 7: i. e. the Diameter is always a little leſs than $\frac{1}{3}$ Part of the Circumference; and this always holds true, be the Circle bigger or leſs.——Therefore, if we multiply the Circumference of the Earth by 7, and divide the Product by 22, the Quotient will give the exact Diameter or Thickneſs; and which, in this Caſe, will be found to be 8018 *meaſured*, or 6872 *computed* Miles.

PROBLEM XX. To ſuſpend the Terreſtrial Globe in ſuch Poſition, that by the Sun's ſhining on it, you may perceive, at one View, the Demonſtration of many Concluſions in *Geography* and *Aſtronomy*.

Take the Earth out of its Horizon, and faſten a Thread on the Brazen Meridian to the Degree of Latitude of the Place you are in. By this Thread hang it where the Sun may ſhine freely upon it. Then direct the Poles of the Globe to their reſpective Places in the Heavens; where ſtay it faſt with another Thread, ſo that it can't go from this Poſition: Then bring the Place you are in to the Meridian; ſo ſhall the Globe be rectified to correſpond in all Reſpects with the Earth itſelf, and that Part of it you live upon.



The Globe being thus ſuſpended in a Room, made *dark* every where but at the Hole through which the Sun Beams enter, (as exhibited in the above Figure) you may pleaſantly behold the following curious *Phænomena*.

PHÆNOMENON I. You will ſee how the *artificial* Earth, like the *natural* one, will have *one* Hemiſphere illuminated by the *Sun*, and the *other* involved in *Shade*.—You will ſee, at that Moment of Time, where its *Day*, and where its *Night*.—'Tis *Day* in all the Countries within the *Sunſhine*, and *Night* in the Nations *behind*, they being hid in *Obſcurity* and *Shade*.

PHÆNOMENON II. If in the Middle of the enlightened Hemiſphere you ſet up a Pin perpendicularly, it will project no Shadow, which ſhews that the Sun is juſt in the *Zenith* of that Place, that is, directly over the Heads of the Inhabitants there.——And, if many Pins be ſtuck up in ſeveral Parts of the Globe, they will caſt their Shadows exactly the ſame Way as the various Inhabitants of thoſe Places do. Some you will ſee pointing towards the North, ſome to the South; ſome ſtretching Eaſtward, others Weſtward; and ſome again projecting no Shadow at all.

PHÆNOMENON III. If you draw a *Meridian Line* with a Pencil from one Pole to the other, through the Middle of the illuminated Hemiſphere; then in all Places under that Line it is *Noon*; in thoſe Places ſituate to the Weſt, it is *Morning*, for with them the Sun is Eaſtward; and in thoſe Places ſituate on the Eaſt, it is *Evening*, for with them the Sun is ſeen haſtening away to the Weſt.

PHÆNOMENON IV. The Globe ſtill remaining in the ſame Poſition, you may ſee on the Eaſt Side in what Nations the Sun is ſtealing away, and the Curtain of Night drawing after it; and on the Weſtern Side of the Globe, you may obſerve how the Sun creeps upon it, driving the Darkneſs before him, and bleſſing the benighted Inhabitants with the Glories of the coming Day.

PHÆNOMENON V. So many Degrees as the Light ſpreads beyond either the North or South Pole, juſt ſo many Degrees is the *Declination* of the Sun either Northward or Southward at that Time; and in all thoſe Places comprehended in a Circle deſcribed at the Termination of the Sunſhine about the Pole, it is *continual Day* till the Sun decreaſes in its Declination; for the Sun goes not below their Horizon, as you may eaſily perceive, by turning the Globe gently upon its Axis; and at the *oppoſite* Pole to the ſame Diſtance round it, it will continue to be Night (the Sun not reaching thither) till it decreaſes in its Declination; for in this Situation it cannot aſcend above, or be ſeen in their Horizon.

PHÆNOMENON VI. If you take a narrow Strip of Paper equal in Length to the *Circumference* of the Globe, and divide it into 24 equal Parts, to repreſent the 24 Hours of the Day and Night, marking it in Order from 1, 2, 3, to 12; and then beginning again 1, 2, 3, to 12 as before; you may, by girthing the Globe round upon the *Equinoctial*, (provided you take Care to place one of the 6's exactly under the Meridian of your Habitation) have a continual Sun Dial, which will always point out the Hour of the Day at two different Parts, viz. where the *illuminated* Hemiſphere is divided from the *ſhaded*, both on the *Eaſtern* and *Weſtern* Sides of the Globe.

Before we conclude this Subject on the Globe, it will not, I flatter myſelf, be diſagreeable to mention a few *peculiar* Properties relative thereto; and which, though at firſt View, may ſeem to carry an Air of Falſhood or Abſurdity to thoſe, who have not been uſed to Enquiries of this Sort, yet upon a more deliberate Conſideration, will be found to be real Truths, and ſuch as actually exiſt in Fact. *Propoſitions* of this Kind are generally called

PARADOXES.

Their Deſign is to awake the Appetite of the young Learner, rouſe his Attention, and ſet him upon thinking.

PARADOX I. There is a certain Place upon the Earth, where the Winds, though frequently veering round the Compaſs, always blow from the North.

SOLUTION.——This muſt be at the South Pole, where there is no ſuch Thing as *Eaſt* and *Weſt*; all Winds blowing there muſt neceſſarily blow from the North, as all Winds at the North Pole muſt needs blow from the South; becauſe the Meridians which are North and South Lines, all unite in the Poles themſelves.

PARADOX II. There are two remarkable Places on the Globe, in which there is but one Day and one Night through the whole Year.

SOLUTION.——The two remarkable Places are the two Poles: for to the North Pole the Sun riſes about the 20th of *March*, and ſets not till the 23d of *September*, at which Time it riſes to the South Pole, and continues to ſhine there till the 20th of *March* following. And becauſe it riſes but once, and ſets but once in a Year to either, there can be but one Day and one Night in the whole Year.

PARADOX III. There are three remarkable Places on the Globe, to whoſe Inhabitants all the Stars in Heaven are viſible on three certain Nights of the Year.

Solution.——This is upon the Equator: When at the Beginning of the Night, you ſee one Hemiſphere, or half the Stars, which by the Morning ſet, and the other half appear in their room, which were hid the Evening before. Thus there are not only three Places, but all Places upon, or near, the Line, are ſavoured with this Appearance, which we here can never enjoy.

PARADOX. IV. There is a certain Iſland in the *Mediterranean* Sea, on which if two Children were born at the ſame Inſtant, and ſhould live ſeveral Years, and both expire on the ſame Day, the Life of the one would exceed the Life of the others ſeveral Months.

Solution.—If one of the Perſons ſail *Eaſt*, the other *Weſt*, round the Globe, which is now eaſily done in a Year, they will differ two Days in their Reckoning, the one having got a Day, the other loſt one; ſo that in 40 Years the one will ſeem to be 80 Days older than the other, when in fact the Life of one is not an Hour more than the other.—Others ſolve this Paradox, by ſuppoſing one of the Perſons to go and reſide in one of the Polar Circles (as at Latitude 73 Degrees) where the Day is 3 Months long; and then return back to the other who lives in a Part of the World where the Day never exceeds 24 Hours; in this Caſe, though both die at the ſame Inſtant, the one will be three Months older than the other.

PARADOX V. There are two Places in *Aſia* that lie under the *ſame* Meridian, and at a ſmall Diſtance from each other, and yet the reſpective Inhabitants, in reckoning their Time, differ an entire Day every Week.

Solution.——This ſeems to be the Caſe of the *Portugueze* and *Spaniards* in the *Eaſt Indies.* The *Spaniards* ſailing thither *Weſterly, loſt half a Day*; the *Portugueze* ſailing *Eaſterly, gained half a Day*; the one having a Settlement in *China*, the other in the *Philippian Iſles*, near the ſame Meridian, it muſt of Courſe be *Saturday* with the one when it is *Sunday* with the other.

PARADOX VI. Three certain Men went a Journey, in which, though their Heads travelled twelve Yards farther than their Feet, yet all returned alive with their Heads on.

Solution.——If any Perſon ſhould travel round the Globe, the Space gone over by his Head will exceed that of his Feet, by the Circumference of a Circle, whoſe Semi-Diameter is the Man's own Height.——Now ſuppoſe *Drake*, *Cavendiſh*, or *Dampier*, who went round the Globe, were each of them near 2 Yards high; then will the Diameter of the Circle be 4 Yards, and the Circumference ſomething more than 12 Yards; and ſo much farther did the *Heads* of theſe Gentlemen go than their *Feet*.

PARADOX VII. There is a Place in *Great Britain*, where, when the Tide is come in, and the Water is high, you may ſee the Cattle feeding on a certain Iſland; but when the Tide is gone out, and the Water low, none can be ſeen, though they are ſtill feeding in the ſame Place.

SOLUTION.——The Place may be the Wharf of *Greenwich*, and the Iſland the little Iſle of *Dogs* over againſt it. This Appearance is cauſed by the Refraction of the Rays of Light, coming from the Iſland at the Time of High Water, juſt as the Sun is refracted by the Air. (See Page 3.) and ſeems to be *above* the Horizon, when it is actually *below* it. In like Manner a Piece of Silver, which cannot be ſeen in a Baſon at a little Diſtance, will, if Water be poured upon it, immediately become viſible.

PARADOX VIII. There is a certain Village in the Kingdom of *Naples*, ſituated in a very low Valley; and yet the Sun is nearer to the Inhabitants every Noon by 3000 Miles and upwards, than it is at the Time of its riſing or ſetting.

SOLUTION.——The Sun is nearer at Noon to the Inhabitants of any Part of the Earth, as well as *Naples*, by the Earth's Semi-Diameter, which, by the moſt accurate Calculation, is 4000 meaſured Miles, and ſomething more.

Paradoxes referring to the Phænomena of the *Moon*, *Planets*, and *Stars*, as they will appear with more Propriety in a *View* of the *Heavens* and *Uſes* of the *Cœleſtial Globe*; we have therefore reſerved them for a Concluſion to a Work of that Nature:—In the mean Time, permit me to conclude in the Language of the moſt *divine Perſonage* that ever honoured this Globe with his Preſence;——a *Perſon* to whom we are *all* infinitely indebted; and whoſe Words ſhould have more Influence in pointing out the Neceſſity of this Kind of Learning, and urging our Purſuits in it, than all the ſtudied *Phraſeology* of the moſt *pompous Writers* or *Orators* in the World.

If I have told you EARTHLY *Things, and ye believe not, how ſhall ye believe if I tell you of* HEAVENLY *Things?*

The END.

⁎ When the Youth has made himſelf acquainted with the Elements of Geographaphy contained in this Treatiſe; I would, for a more *particular* Deſcription of the *Manners, Cuſtoms* and *Conſtitutions* of the different Nations and Countries, recommend him to Mr. *Salmon*'s Geographical Grammar; and the *Claſſical* Scholar will receive great Helps from Mr. *Wells*'s, and Mr. *Holmes*'s Books on Account of their ANTIENT Geography.

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